

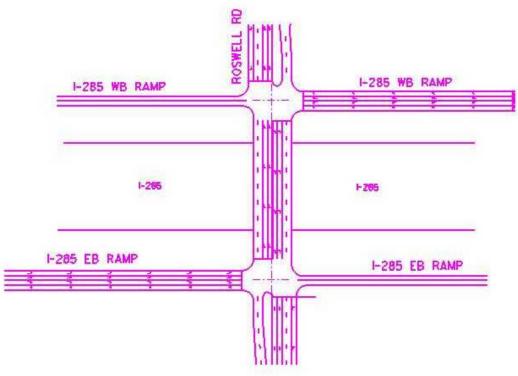
NHS-0000-99 (247)

Interchange Improvements at Roswell Road and Interstate 285

Fulton County, Georgia

Value Engineering Study Report

Concept Design Stage July 2004



Design Consultant
Georgia Department of Transportation

Value Engineering Consultant



Lewis & Zimmerman Associates, Inc.



Lewis & Zimmerman Associates, Inc.

Taking the Chance out of Change

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July 27, 2004

Ms. Lisa L. Myers
Design Review Engineer Manager
State of Georgia Department of Transportation
General Office
No. 2 Capitol Square, Room 266
Atlanta, Georgia 30334-1002

re: Project Number NHS-0000-99 (247)

Interchange Improvements to Roswell Road at Interstate Highway 285 (I-285) from

Lake Placid to Cliftwood Drive in Fulton County, Georgia

Value Engineering Study Report

Dear Ms. Myers:

Lewis & Zimmerman Associates, Inc. is pleased to submit four copies and one electronic copy of the referenced report.

The alternatives and design suggestions developed during this VE effort deal with the primary focus areas and identified opportunities that would improve the value of the project in terms of: reduction in overall congestion, improved safety, accommodation of the future I-285/SR 400 corridor upgrading/ expansion improvements, potential capital cost reductions, soundness of solutions, improved constructibility, and improved level of service.

We wish to take this opportunity to thank you and the State of Georgia Department of Transportation participants for your efforts to assist the VE team in generating new, creative solutions for this project. We look forward to working with you on future assignments and providing additional value engineering services.

Sincerely,

LEWIS & ZIMMERMAN ASSOCIATES, INC.

Luis M. Venegas, PE, CVS-Life

Vice President

Attachment

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EXECUTIVE SUMMARY

INTRODUCTION

This value engineering (VE) study report summarizes the events of the VE study conducted by Lewis & Zimmerman Associates, Inc. (LZA) for the State of Georgia Department of Transportation (GDOT), Atlanta, Georgia. The subject of the study was the Interchange Improvements at Roswell Road and Interstate Highway 285 from Lake Placid to Clifton Drive also known as Project NHS-0000-00(247) in Fulton County, Georgia. The project is being designed by the GDOT and is at the concept design stage.

PROJECT DESCRIPTION

The project is located in the Sandy Springs area of Fulton County. The project includes 0.6 miles of Roswell Road improvements from Lake Placid Drive to Cliftwood Drive including replacement of the bridge over I-285 and 1.44 miles of braided ramp. Left turn lanes and storage for left turns, a raised median, bicycle lanes, and sidewalks are proposed on Roswell Road. The new bridge will be designed with provisions for full shoulders and HOV lanes on I-285. The braided ramp parallels the I-285 eastbound direction for exiting to Glenridge Drive and SR 400 to eliminate the merge/weave with the Roswell Road entrance ramp. The termini allow for vertical tie-in on the southern side of the project and realignment of an operationally deficient intersection at Carpenter Drive and Cliftwood Drive on the northern side.

The current probable cost of construction has been identified as \$93,460,620. This figure is composed of \$74,943,200 of right-of-way purchases and \$18,317,420 for actual construction as noted on the Preliminary Cost Estimate for NHS-0000-00(247) dated May 12, 2003. The project contains an engineering and construction contingency of 10.00% and an inflation of rate of 10.25% (based on 5.00% per annum for two years).

CONCERNS AND OBJECTIVES

No major concerns were indicated by GDOT beyond the normal functional improvements expected with any good value engineering effort. However, GDOT has recently come under scrunity from the citizens of Sandy Springs due to their perceived notion of GDOT's inactivity to improve the interchange. Nevertheless, pursuing this project beyond its current state of design does not appear warranted due to the lack of consensus among the numerous studies currently underway to improve the entire length of the northern arc of I-285 that include: (1) GDOT's High Occupancy Vehicle (HOV) Implementation Plan for the Atlanta Region, (2) GDOT's I-285/SR 400 Design, (3) Georgia Regional Transportation Authority's (GRTA) SR 400 Northern Sub Area Study, (4) the I-285/Ashford-Dunwoody Road Interchange Project, (5) the I-285/Riverside Drive Interchange Project, (6) Atlanta Regional Commission's (ARC) I-285 Study, (7) Bus Rapid Transit on Roswell Road, (8) GDOT's I-285 Implementation Study, (9) and State Road Toll Authority's (SRTA) SR 400 Studies. However, it

may be prudent to consider purchasing the bulk of the right-of-way necessary to accommodate the most likely scenario of I-285 improvements along with a selected widening of Roswell Road and an appropriately sized bridge over I-285.

Therefore, in order to accomplish the project's goals in an expeditious and cost-effective manner, and to assist in ameliorating the concern noted, GDOT engaged this VE study. The objective of the effort was to identify opportunities that would improve the value of the project in terms of: reduction in overall congestion, improved safety, accommodation of the future I-285/SR 400 corridor upgrading/expansion improvements, potential capital cost reductions, soundness of solutions, improved constructibility, and improved level of service.

HIGHLIGHTS OF THE STUDY

The project is a relatively straightforward concept to improve the interchange at Roswell Road and I-285. However, most of the project's cost, over 80%, is for acquiring right-of-way and relocating businesses. This is causing a major disruption to the area. Under the current plan, only the Roswell Road/I-285 interchange problems are addressed. Other studies conducted by GDOT and others indicate more widespread traffic congestion and environmental and safety problems in the I-285 northern quadrant corridor, of which the Roswell Road/I-285 interchange is an integral part. These problems also require adjudication.

Since no definitive plan is in place for improving the overall northern section of I-285, the VE team believes it is premature to embark on a project to fix a small piece of it by acquiring a substantial amount of commercial property now and then potentially acquiring more land and instituting additional structural changes later to accommodate corridor needs. This approach will potentially lead to an unnecessary expenditure of funds and will prolong the disruption of the area caused by construction activities. Thus the VE team developed Alternative No. RW-7 recommending that nothing be done at this time.

If GDOT decides that it must do something now to alleviate the congestion at Roswell Road and the potential for backup onto the mainline of I-285, the VE team developed some alternatives to enhance the current interchange concept. Listed below are some of the more salient ideas developed and are provided here as a sampling of the contents of the report.

Roadway (RW) Alternatives

As a means of alleviating some of the congestion on Roswell Road, Alternative No. RW-1 widens Roswell Road to six lanes starting at the I-285 interchange north to the intersection with Hammond Drive. This widening, although costing about \$5,100,000, would preclude traffic backing up onto the I-285 mainline without a major impact on potential future expansions of the eastbound and westbound ramps. This widening could also be the beginning of an additional improvement to Roswell Road that would extend the six-lane widening farther north to the Abernathy Road intersection.

Another immediate "fix" to some of the traffic flow impediments along Roswell Road that do not affect any future I-285 corridor improvements is the synchronization of all the signalized intersections along Roswell Road from Lake Placid Drive north to Abernathy Road. This is noted on Alternative No. RW-

15 and will cost about \$250,000. This would minimize traffic surges and help alleviate potential vehicle back-up onto the I-285 mainline.

Ramp (R) Alternatives

The current design solution creates two eastbound ramps from I-285 just west of the Roswell Road interchange: one that exits to Roswell Road and a two-lane ramp that is earmarked for exiting the mainline at either Glenridge Drive or SR 400. The two-lane ramp goes under the new Roswell Road bridge includes a braid bridge over the ramp from Roswell Road to I-285 eastbound. Alternative No. R-4 consolidates these two ramps to create a longer unified ramp that reduces weaving and eliminates the braided effects of the current solution it will also improve safety.

However, this solution requires additional right-of-way and construction costing about \$7,000,000 because the proposed new single ramp must commence west of the Lake Forrest Drive overpass requiring a bridge lengthening. It is noted that this additional right-of-way may ultimately be required if the collector-distributor facility along the south side of I-285 is incorporated into the overall corridor improvements.

In a related idea, Alternative No. R-6 moves the start of the two eastbound exit ramps westward beyond the Lake Forrest Drive overpass without consolidation. The additional right-of-way costs could be reduced to approximately \$3,400,000 while gaining some of the same benefits of Alternative No. R-4.

Since staging will be required regardless of the final improvement solution to the Roswell Road/I-285 interchange, Alternative No. R-16 recommends constructing a new bridge over I-285 and extending Sandy Springs Circle over I-285. This would provide another easy crossing of I-285 for local traffic and residents without impacting Roswell Road traffic and could serve as a staged crossing of I-285 during the construction period or for use during emergency situations.

Summary of Potential Cost Savings worksheets follow this narrative outlining all of the alternatives and design suggestions developed by the VE team. Some of the alternatives are mutually exclusive or interrelated so that addition of all project cost savings does not equal total savings for the project. A full listing of all of the ideas considered by the VE team can be found on the *Creative Idea Listing* worksheets in the Section 4 of this report.



SUMMARY OF POTENTIAL COST SAVINGS

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTWOOD DRIVES

Concept Design Stage

PRESENT WORTH OF COST SAVINGS

			FRESLINI	WORTH OF CO.	31 3AVINGS	
ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	INITIAL COST SAVINGS	RECURRING COST SAVINGS	TOTAL PW LCC SAVINGS
	ROADWAY (RW)					
RW-1	Make Roswell Road six lanes from the I-285 Interchange to Hammond Drive	\$0	\$5,105,893	(\$5,105,893)		(\$5,105,893)
RW-2	Acquire the right-of-way for six lanes on Roswell Road from Lake Placid Drive to Hammond Drive	\$0	\$4,956,280	(\$4,956,280)		(\$4,956,280)
RW-6	Move the Roswell Road alignment farther west		DES	SIGN SUGGES	TION	
RW-7	Do nothing in the short term		DES	SIGN SUGGES	TION	
RW-10	Eliminate access to Roswell Road to/from Allen Road		DES	SIGN SUGGES	TION	
RW-15	Synchronize signals from Lake Placid Drive through the Roswell Road/ I-285 Interchange north to Abernathy Road	\$101,010	\$346,320	(\$245,310)		(\$245,310)
	RAMPS (R)					
R-4	Consolidate eastbound ramps	\$0	\$7,005,738	(\$7,005,738)		(\$7,005,738)
R-6	Extend/relocate the beginning of eastbound I-285 ramp further west - beyond Lake Forrest Drive	\$0	\$3,357,553	(\$3,357,553)		(\$3,357,553)
R-10	Evaluate location of the braided ramp	\$3,391,050	\$3,382,969	\$8,081		\$8,081
R-16	Construct a bridge to connect Sandy Springs Circle with Copeland Road	\$0	\$3,525,148	(\$3,525,148)		(\$3,525,148)
R-17	Change ramp pavement from asphalt to concrete	\$610,028	\$5,707,787	(\$5,097,759)	\$3,883,238	(\$1,214,521)

STUDY RESULTS

INTRODUCTION

The results are the major feature of a value engineering (VE) study since they represent the benefits that can be realized on the project by the owner, users, and designers. The results will directly affect the project design and will require coordination among the designers, the user, and the owner to determine the ultimate acceptance of each alternative.

The creative ideas are organized according to the order in which they were originally generated by the VE team during its function analysis and creative idea generation sessions. The following prefixes in the alternative numbers are used to designate the project element being addressed:

 $\mathbf{RW} = \mathbf{Roadway}$ $\mathbf{R} = \mathbf{Ramp}$

RESULTS OF THE STUDY

The VE team generated 33 ideas for change during the Function Analysis and Creative Idea generation phases of the VE Job Plan. The evaluation of these ideas was based upon their potential for capital cost savings, probability of acceptance, availability of information to properly develop the idea, compliance with perceived quality requirements, adherence to universally accepted standards and procedures, life cycle cost efficiency, safety, maintainability, constructibility, and soundness of the idea.

Of the 33 ideas generated, 14 of them were sufficiently rated to warrant further investigation. Continued research and development of these ideas yielded eight alternatives for change with an impact on project costs and three design suggestions that will enhance the value of the project in terms of reduction in overall congestion, improved safety, accommodation of the future I-285/SR 400 corridor upgrading/expansion improvements, improved constructibility, and/or improved level of service. All of these alternatives and design suggestions are presented in detail following this narrative and are summarized on the *Summary of Potential Cost Savings* worksheets.

EVALUATION OF ALTERNATIVES

Once the aforementioned ideas are developed, it is important to consider each part of an individual alternative on its own merit. There is a tendency to disregard an alternative because of concern about one portion of it. Thus, separate consideration should be given to each of the areas within an alternative that are acceptable and those parts should be considered in the final design, even if the entire alternative is not implemented.

Cost is the primary basis of comparison for alternative designs. To ensure that costs are comparable within the alternatives proposed by the VE team, the designer's cost estimate, where possible, is to be

used as the pricing basis. Where appropriate, replacement costs and the effect on operations and maintenance are shown within each alternative.

Some of the alternatives are interrelated, so acceptance of one may preclude the acceptance of another. The reader should evaluate those alternatives carefully to select the ideas with the greatest beneficial impact to the project.



SUMMARY OF POTENTIAL COST SAVINGS

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTWOOD DRIVES

Concept Design Stage

PRESENT WORTH OF COST SAVINGS

			FRESLINI	WORTH OF CO.	31 3AVINGS	
ALT. NO.	DESCRIPTION	ORIGINAL COST	ALTERNATIVE COST	INITIAL COST SAVINGS	RECURRING COST SAVINGS	TOTAL PW LCC SAVINGS
	ROADWAY (RW)					
RW-1	Make Roswell Road six lanes from the I-285 Interchange to Hammond Drive	\$0	\$5,105,893	(\$5,105,893)		(\$5,105,893)
RW-2	Acquire the right-of-way for six lanes on Roswell Road from Lake Placid Drive to Hammond Drive	\$0	\$4,956,280	(\$4,956,280)		(\$4,956,280)
RW-6	Move the Roswell Road alignment farther west		DES	SIGN SUGGES	TION	
RW-7	Do nothing in the short term		DES	SIGN SUGGES	TION	
RW-10	Eliminate access to Roswell Road to/from Allen Road		DES	SIGN SUGGES	TION	
RW-15	Synchronize signals from Lake Placid Drive through the Roswell Road/ I-285 Interchange north to Abernathy Road	\$101,010	\$346,320	(\$245,310)		(\$245,310)
	RAMPS (R)					
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R-10	Evaluate location of the braided ramp	\$3,391,050	\$3,382,969	\$8,081		\$8,081
R-16	Construct a bridge to connect Sandy Springs Circle with Copeland Road	\$0	\$3,525,148	(\$3,525,148)		(\$3,525,148)
R-17	Change ramp pavement from asphalt to concrete	\$610,028	\$5,707,787	(\$5,097,759)	\$3,883,238	(\$1,214,521)



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: MAKE ROSWELL ROAD SIX LANES FROM THE I-285

INTERCHANGE TO HAMMOND DRIVE

SHEET NO.: 1 of 5

ALTERNATIVE NO.: RW-1

ORIGINAL DESIGN:

The current design for Roswell Road calls for four 12-ft. travel lanes, a raised median varying in width from 8 – 31 ft. (for dual left turn and storage lanes), two 4-ft. bike lanes, and two 16-ft. urban shoulders with 7-ft. sidewalks.

ALTERNATIVE: (Sketch attached)

Add two 12-ft. through travel lanes (one for each direction) to the original design on the west side of Roswell Road.

ADVANTAGES:

- DISADVANTAGES:
- Improves operation of Roswell Road
- Decreases the chance of coming back to buy right-of-way in the near future

• Costs more to buy right-of-way and build new lanes

DISCUSSION:

If the two through lanes are built at the same time with the interchange improvement, it will help in diverting traffic from I-285 at a faster rate. It costs less to construct these lanes at the same time the bridge and the ramps are constructed.

COST SUMMARY	INITIAL COST		PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	0	3/4	\$	0
ALTERNATIVE	\$	5,105,893	3/4	\$	5,105,893
SAVINGS	\$	(5,105,893)	3/4	\$	(5,105,893)

INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO .: INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES RW-1 Concept Design Stage ☑ ALTERNATIVE SHEET NO.: 2 of 5 ☐ AS DESIGNED HAMMOND Dr. AA: Three through lane each direction, plus bikes lanes and shoulders Cliftwood Dr. Carpenter Dr. Interchange

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

ALTERNATIVE NO.:

Concept Design Stage

RW-1

☐ AS DESIGNED

☐ ALTERNATIVE

SHEET NO.: 3 of 5



Not to scale

CALCULATIONS



PROIECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES Concept Design Stage

ALTERNATIVE NO .: RW-1

DESCRIPTION:

SHEET NO.: 4 of 5

- Additional 2 12' lanes

12' x 2 = 24'

- Length Grom interchange to Hammond Drive (Fstimute)

2371 ft

- 2371 + 24' = 56904 S.f. (1 ACRE) = 1.31 ACRES

Land: Commercial

1.31 acres @\$750,000/Acre =\$982,500

3 paicels \$ 75,000 Relocation

\$ 1,057,500

COST WORKSHEET

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO. RW-1

DESCRIPTION: SHEET NO. 5 of 5

CONSTRUCTION ITEM		C	ORIGINAL ES	TIMATE		PROPOSED ESTIMATE			
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL		
Asphalt paving	SY				6,323	35.00	221,305		
Drainage	MI				0.25	250,000.00	62,500		
Curb and gutter (T2)	LF				2,700	11.15	30,105		
4-inch sidewalk	SY				3,000	19.08	57,240		
6-inch concrete median	SY				2,889	33.00	95,337		
Erosion control	LS						1,000		
Si	ubtotal						467,487		
Markup at 2	0.25%						94,666		
Sı	ubtotal						562,153		
Right-of-way									
Land - commercial	AC				1.31	750,000.00	982,500		
Relocations	Parcel				3	25,000.00	75,000		
Si	ubtotal						1,057,500		
Markup at 24	7.20%						2,428,740		
St	ubtotal						4,543,740		
Sul	b-total						5,105,893		
Mark-up at							Included		
Т	OTAL						5,105,893		



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-2

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: ACQUIRE RIGHT-OF-WAY FOR SIX LANES FROM

LAKE PLACID DRIVE TO HAMMOND DRIVE

SHEET NO.: 1 of 3

ORIGINAL DESIGN:

The current design does not address widening Roswell Road to six lanes from Lake Placid Drive to Hammond Drive.

ALTERNATIVE:

It is strongly suggested that the right-of-way to build additional two lanes on the west side of Roswell Road from Lake Placid Drive to Hammond Drive be purchased now. This will permit Roswell Road to be expanded to three lanes in each direction in the future.

ADVANTAGES:

DISADVANTAGES:

- Do not have to come back to acquire rightof-way for future expansion of Roswell Road
- Adds initial cost

DISCUSSION:

Based on the current traffic conditions on Roswell Road, another two lanes are needed to improve the traffic on Roswell Road and traffic exiting from I-285. Sooner or later these lanes will be required, thus, if the right-of-way is acquired now, the prospect of improving traffic operation at this interchange is improved.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$ 0	3/4	\$	0
ALTERNATIVE	\$ 4,956,280	3/4	\$	4,956,280
SAVINGS	\$ (4,956,280)	3/4	\$	(4,956,280)

CALCULATIONS



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

ALTERNATIVE NO.:

Concept Design Stage

DESCRIPTION:

SHEET NO .: 2 of 3

- Right of way Cost for two lanes on the west side of ROSWELL ROAD

2 , 12'. lane)

2 x (2 = 241

- length from Lake Placed to interchange: 850'

- length bran interchange to Hammond Road 2371

- Total longth: 3221

3221' x24' = 77304ft2

77304 H2 (43560 ft2) = 1.77 ACTE

1,77 Acre (\$750,000) = \$1,328,000 \ Land: Commercia

Relocation 4 parcels \$100,000

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO. RW-2

DESCRIPTION: SHEET NO. 3 of 3

CONSTRUCTION ITEM		C	RIGINAL ES	TIMATE	1	PROPOSED ESTIMATE			
ITEM		UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL	
and - commercial		AC				1.77	750,000.00	1,327,500	
Lelocations		Parcel				4	25,000.00	100,000	
	Sub-total							1,427,500	
Mark-up at	247.20%							3,528,780	
	TOTAL							4,956,280	



ALTERNATIVE NO.: RW-6

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: MOVE ROSWELL ROAD ALIGNMENT FARTHER WEST SHEET NO.: 1 of 2

ORIGINAL DESIGN:

Maintain existing alignments (existing and proposed) of Roswell Road.

ALTERNATIVE:

Shift proposed Roswell Road alignment farther west.

ADVANTAGES:

- Eliminates any right-of-way acquisition on the east side other than at the interchange
- The new Roswell Road bridge can be constructed without interfering with the existing bridge
- Eliminates any concerns with the lake in the southeast corner of the site

DISADVANTAGES:

- Larger shift in Roswell Road
- More earthwork is required to fill the void in the southwest quadrant

DISCUSSION:

This alternative will realign the proposed Roswell Road farther to the west. The intent is to eliminate any right-of-way acquisition or easements. The current alignment, even though it does not show much right-of-way acquisition on the eastside, would require some due to bike lanes, curb and gutter, and improved/wider sidewalks. While not requiring total acquisitions on the eastside, it would affect the businesses to a significant degree, especially in terms of parking, and therefore will be costly, disruptive, and time consuming. Additionally, the toe of the slope looks as if it is encroaching the lake in the southeast quadrant, which is certainly undesirable. The shift in Roswell Road farther west will eliminate or minimize any detrimental effects to the eastside and right-of-way acquisition.

The construction costs would be essentially the same since the roadway parameters are similar. The right-of-way costs would most likely be reduced, since GDOT will be acquiring total parcels on the westside and will have available room to shift the alignment acquisitions to the west at the project limits. However, they will be offset by the reduced right-of-way on the eastside. Another benefit of this alignment is that the entire new bridge can be constructed in the clear without affecting the existing bridge. There will still be staging concerns at the ramps. However, this will be an issue with either alignment. There could be additional fill required on the west side, but this is more desirable than affecting the lake. Overall, the primary benefit of this alternative is to eliminate right-of-way impacts to the east, which is feasible, desirable, and practical. The overall shift in the alignment should not be severe enough to require exceptions on Roswell Road.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST			
ORIGINAL DESIGN						
ALTERNATIVE	DESIGN SUGGESTION					
SAVINGS						

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

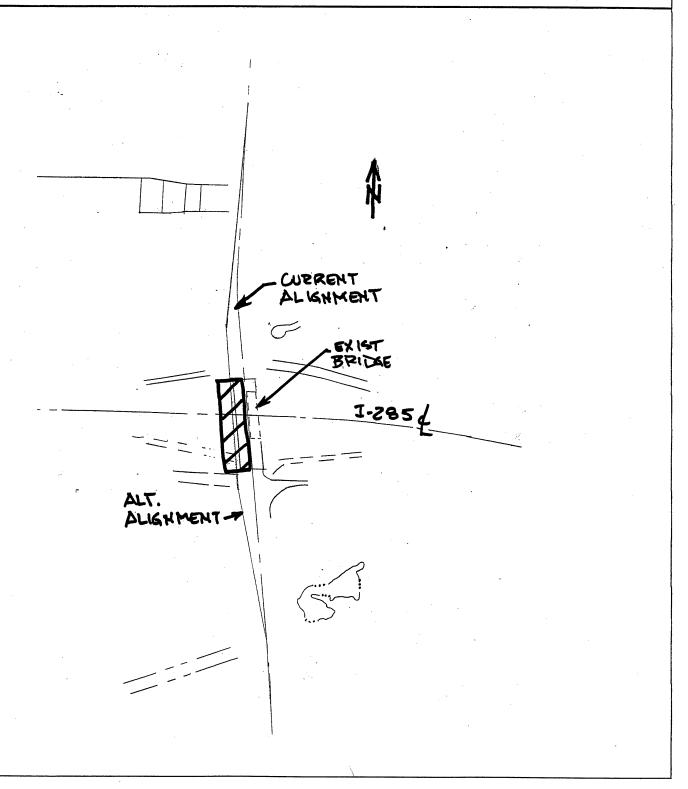
☐ AS DESIGNED

□ ALTERNATIVE

ALTERNATIVE NO.:

RW-6

SHEET NO.: 2 of 2





PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-7

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: DO NOTHING IN THE SHORT-TERM 1 of 3 SHEET NO.:

ORIGINAL DESIGN:

As currently depicted:

- Shift alignment of Roswell Road slightly west
- Create an eastbound (EB) I-285 to Glenridge/SR400 Ramp
- Braid ramp with EB Roswell Road ramp to I-285
- Build ultimate bridge at Roswell Road
- Purchase approximately \$75M in right-of-way

ALTERNATIVE:

Do not build project until other ongoing studies for the northern section of I-285 have been completed. Once those are complete, build project (alter if necessary) so that throw-away cost is minimized and the project represents a critical and necessary component of the ultimate construction.

ADVANTAGES:

- Would acquire valuable right-of-way (\$75M) likely needed for future improvements
- Would build bigger bridge (\$6M) which would likely accommodate future I-285
- May provide temporary relief to I-285 EB operations at Glenridge/SR 400 merge/diverge
- Would provide sound walls along I-285 (likely)

DISCUSSION:

If implemented, this project should be modified to: accommodate the two-lane barrier separated HOV in each direction (longer bridge I-285); accommodate a five-lane westbound collector-distributor; consolidate I-285 eastbound (EB) exit ramp to Roswell Road with I-285 EB ramp to Glenridge/SR 400; close all access to Roswell Road at Allen Road; and analyze vertical geometry in the area of the braided ramp EB.

These changes are based on a variety of other studies being performed for this Section of I-285 by GDOT.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST			
ORIGINAL DESIGN						
ALTERNATIVE	DESIGN SUGGESTION					
SAVINGS						

DISADVANTAGES:

- Project as a stand alone; fails to meet purpose and need
- Throw away ramps, braided ramp bridge (ultimate)
- Project is within footprint of ultimate I-285/SR 400 interchange; many critical decisions have yet to be made



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-7

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: **DO NOTHING IN THE SHORT TERM** SHEET NO.: 2 of 3

DISCUSSION (Continued):

FHWA Position:

- FHWA believes the two EB ramp diverges are too close (Fatal Flaw).
- FHWA believes in "the sanctity of the interstate," i.e., interstate operations are the highest consideration.
- FHWA will not approve the project if operations are not improved. Operationally there are two issues:
 - 1) Roswell Road operations are poor as is the existing ramp storage. This results in ramps from I-285 to Roswell Road which backup with traffic onto the interstate. Without widening Roswell Road to six lanes, nothing is being done to address this (Fatal Flaw).
 - 2) GDOT and FHWA are concerned that the merge/diverge area along the eastbound ramp (with braid) spends \$4M for a braided bridge and close to \$20M for right-of-way. The ramps' merge/diverge level of service (LOS) remains "LOS F." (Fatal Flaw).
- The project, as proposed, does not address an operational need and purpose, so FWHA could not support it. It would require modification.

GDOT Position:

- GDOT wants to address mainline I-285 merge/diverge at Glenridge/SR 400.
- GDOT is under pressure to provide sound walls along I-285.
- GDOT wants to build the ultimate bridge at Roswell Road and I-285.
- GDOT proposes westerly shift of Roswell Road to avoid a 60 ft. oak tree.
- GDOT recognizes that a Roswell Road typical section cannot be implemented symmetrically or businesses on both sides of Roswell Road will be wiped out. They must pick a side.
- GDOT recognizes that the project could be influenced by ongoing studies:
 - 1) GDOT I-285 Strategic Implementation Plan; and
 - 2) ARC I-285 Transit Study.
- GDOT has moved the Roswell Road/I-285 Interchange into a long range plan.
- GDOT wants to limit "throw away" cost.
- GDOT only wants to have to approach potential right-of-way (R/W) acquisition properties once.
- GDOT does not want to preclude future improvements along I-285.
- GDOT is under pressure from the Sandy Springs revitalization group to move forward with the project.

Conclusions:

- The ultimate bridge typical section for Roswell Road cannot be predicted now with any reasonable certainty.
- The ultimate R/W needs along I-285 cannot be predicted with any reasonable certainty.
- The ultimate sound wall locations along I-285 cannot be predicted with any reasonable certainty.
- GDOT can improve I-285 EB operations slightly at Glenridge/SR400. However, the merge/diverge is still LOS F and ramp and braid would be throw-away cost when the ultimate is constructed.

With all of these unfulfilled needs, it would be prudent for GDOT to delay implementation of this project.



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-7

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: **DO NOTHING IN THE SHORT-TERM** SHEET NO.: 3 of 3

DISCUSSION (Continued):

Conclusions (continued)

- If the EB braid is constructed, the right-of-way impacts (\$20 \$30M) along the south side of I-285 are unavoidable.
- From a constructibility perspective, a partial construction of the ultimate Roswell Road Bridge at I-285 should not be considered.
- The location of Roswell Road should not be influenced by the 60- in. oak tree.
- If the project is constructed as shown, all ramp costs (including braided ramp bridge) are throw-away costs.
- Salvageable aspects include:
 - 1) Right-of-way \$74M;
 - 2) Roswell Road bridge \$6M; and
 - 3) Roswell Road widening \$5M.
- Improvements along Roswell Road are fundamentally tied to the I-285 improvements. (Bridge length widths, six-laning, dual lefts, etc.)
- Improvements along I-285 interim are fundamentally linked to the ultimate I-285 improvements.
- FHWA would not allow six-laning of Roswell Road or dual left ramps onto I-285 unless I-285 operations could accommodate with an acceptable LOS D for the design year.



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-10

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: ELIMINATE ACCESS TO ROSWELL ROAD TO/FROM

SHEET NO.:

1 of 3

ALLEN ROAD

ORIGINAL DESIGN: (Sketch attached)

The current design allows access to westbound (WB) Allen Road from southbound (SB) Roswell Road and access to SB Roswell Road from eastbound (EB) Allen Road.

ALTERNATIVE: (Sketch attached)

Eliminate access to Roswell Road to/from Allen Road by providing a cul-de-sac at the current Roswell Road/Allen Road intersection.

ADVANTAGES:

- Conforms to FHWA requirements
- Improves safety
- Eliminates confusion
- Reduces congestion

DISADVANTAGES:

- No access provided to Allen Road
- Loss of amenity

DISCUSSION:

The access to and from Allen Road appears to be in violation of limited access criteria to interstate ramps and does not add much benefit to the project. It actually presents a more dangerous condition by having a side road close to a ramp turn-off. Access to Allen Road is provided by Cliftwood Drive and Sandy Springs Circle and is not required as shown on the current concept. If emergency vehicle access is a concern, other provisions can be provided. Eliminating the Allen Road access from Roswell Road will provide a safer alternative that conforms to current established standards.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST		
ORIGINAL DESIGN					
ALTERNATIVE	DESIGN SUGGESTION				
SAVINGS					



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

ALTERNATIVE NO.:

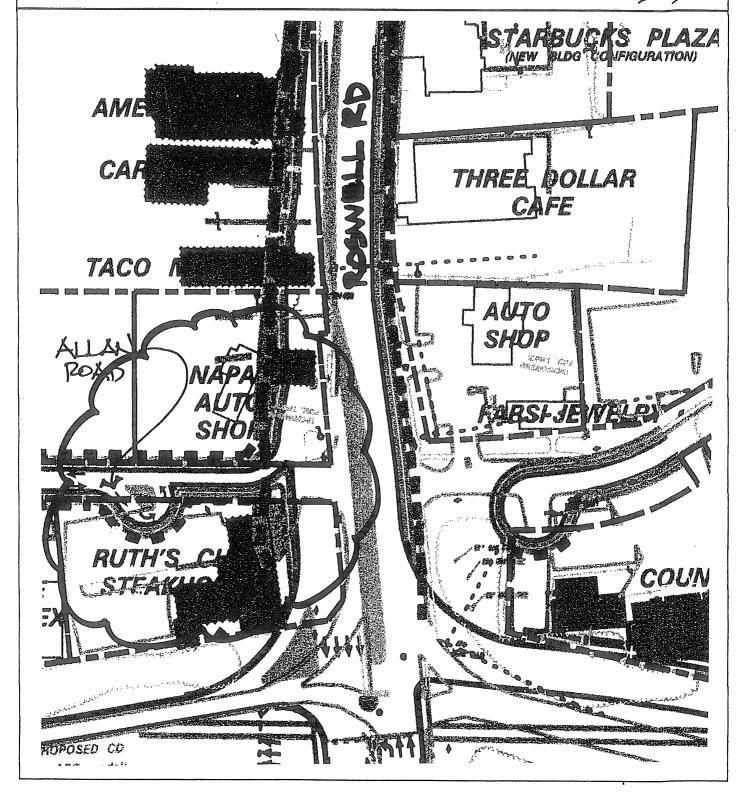
Concept Design Stage

RW-10

AS DESIGNED

☐ ALTERNATIVE

SHEET NO.: 2 of 3





PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

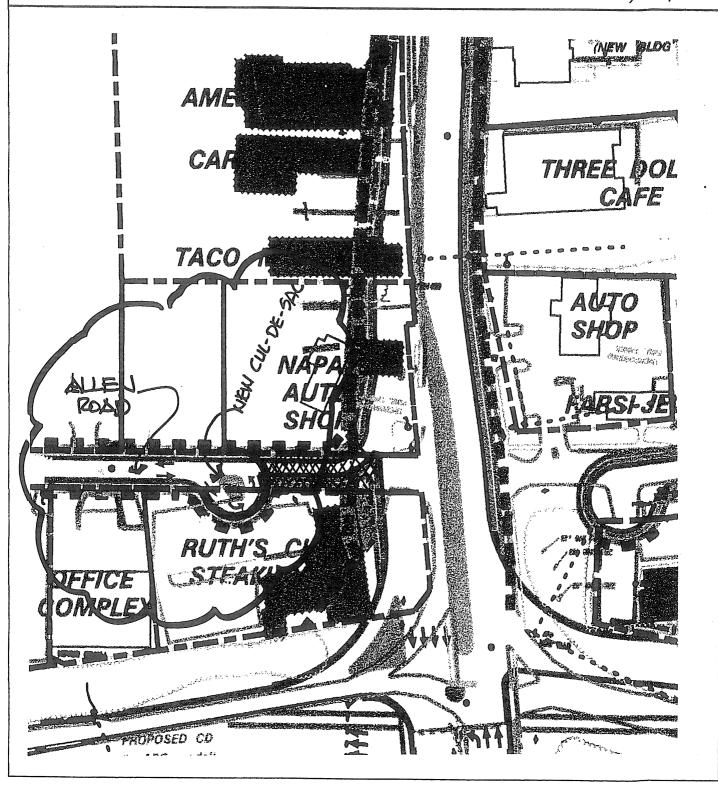
☐ AS DESIGNED ☐

☐ ALTERNATIVE

ALTERNATIVE NO.:

RW-10

SHEET NO .: 3 of 3





1 of 3

SHEET NO.:

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: RW-15

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: SYNCHRONIZE SIGNALS FROM LAKE PLACID DRIVE

THROUGH THE ROSWELL ROAD/I-285 INTERCHANGE

NORTH TO ABERNATHY ROAD

ORIGINAL DESIGN:

The original design will replace/rework the signals at the ramp intersections to Roswell Road on the north and south sides of I-285. It is assumed that new controllers will be required at these intersections and those at Lake Placid Drive and Cliftwood/Carpenter Drives. It is assumed that the signals at these four intersections would be synchronized together.

ALTERNATIVE:

Synchronize the signals at an additional seven intersections along Roswell Road north of Cliftwood/Carpenter Drives to the intersection at Abernathy Road.

ADVANTAGES: DISADVANTAGES:

- Improves travel time
- Lessens congestion
- Improves safety

Adds cost

DISCUSSION:

This alternative may have already been implemented. However, it would be prudent to revisit the effectiveness of the synchronization and optimize, if possible.

COST SUMMARY	INITIAL COST		PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	101,010	3/4	\$	101,010
ALTERNATIVE	\$	346,320	3/4	\$	346,320
SAVINGS	\$	(245,310)	3/4	\$	(245,310)

CALCULATIONS

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.:

RW-15

DESCRIPTION:

SHEET NO.: Z of 3

HNTB	Made by Gearf Checked by	Date 7-9-04	Job Number Pw-15
The HNTB Companies			Sheet Number
Calculations For	Backchecked by	Date	•

ADDI	TICUAL
++++++	CIZES INTERSECTIONS ALONG ROSWELL ROAD &
W00.74	or 5-285
++++++	
	HAMMOND DE C ROSWOCK RN
	HILDERBRAND DR @ ROSWELL PA
7	
 	MT VERNOW HWY @ ROSWELL RA
4)	JOHN SON FRERY RS @ ROSWELL RA
□	SANDY SPENOS CIRCLE
6)	CROMUTELL RO/VERNOW WOODS @ ROSMELL RO
7)	ABERNATHY PD @ POSWOLE PD
	V 170-956-5770
COST	S PROM KEITH STRICKLAND TRANSP. PLANNER @ HNTB
	EQUIPMENT COSTS
	NEW CONTROLLER INTERSECTION @ \$10 K ZA
	COMMUNICATION cable Caerial) @ \$15/FT
	ENGINEERING COSTS @ \$ 2000/WIERSZITIEN
	ENGINEERING COSTS C \$ 2000/INTERSTITION
LENGTH	OF RIBER CABLE
	BERNATHY => CLIPTWOUD/CARPOWTER = 8000'
11/6	LIFTWOOD CARPONTER -> LAVE PLACIS = 2400
وسال الله	SCALLED DISTANCES FROM ROAD ATLAS

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO. RW-15

DESCRIPTION: SHEET NO. 3 of 3

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE			
ITE	EM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
New controllers								
	Lake Placid Drive	EA	1	10,000.00	10,000	1	10,000.00	10,000
	Southern Ramps	EA	1	10,000.00	10,000	1	10,000.00	10,000
	Northern Ramps	EA	1	10,000.00	10,000	1	10,000.00	10,000
Cliftwood	l / Carpenter Drives	EA	1	10,000.00	10,000	1	10,000.00	10,000
Add	itional Intersections	EA				7	10,000.00	70,000
Communications ca Drive to Cliftwood		LF	2,400	15.00	36,000	10,400	15.00	156,000
Engineering (per in	tersection)	EA	4	2,000.00	8,000	11	2,000.00	22,000
	Sub-total				84,000			288,000
Mark-up at	20.25%				17,010			58,320
	TOTAL				101,010		-	346,320



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: R-4

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: CONSOLIDATE EASTBOUND RAMPS SHEET NO.: 1 of 4

ORIGINAL DESIGN:

Provide separate eastbound (EB) exit ramps from I-285 for Roswell Road and Glenridge Drive.

ALTERNATIVE: (Sketch attached)

Combine exits by moving the beginning of the ramp further west on I-285.

ADVANTAGES:

- Improves operations
- Puts decision points on I-285
- Improves safety
- Eliminates short distance between exit ramps

DISADVANTAGES:

- Adds construction
- Adds bridge work at Lake Forrest Drive
- Adds signage
- Adds retaining walls
- Additional right-of-way required

DISCUSSION:

This alternative will eliminate the two EB exit ramps by combining them into one larger exit ramp farther west of the original I-285 to Roswell Road exit ramp and west of the existing Lake Forrest Drive overpass. This will require a decision to exit for Glenridge/SR 400 much earlier on I-285 and also requires a split on the ramp itself for Glenridge Drive/SR 400 and Roswell Road. This will lead to some operational issues. However, it will shift vehicles onto the ramp, and off the interstate. However, this exiting approach will require additional overhead signage, additional construction costs, additional right-of-way impacts, and bridge work at Lake Forrest Drive. The major benefit is the elimination of two exit ramps in close proximity to each other.

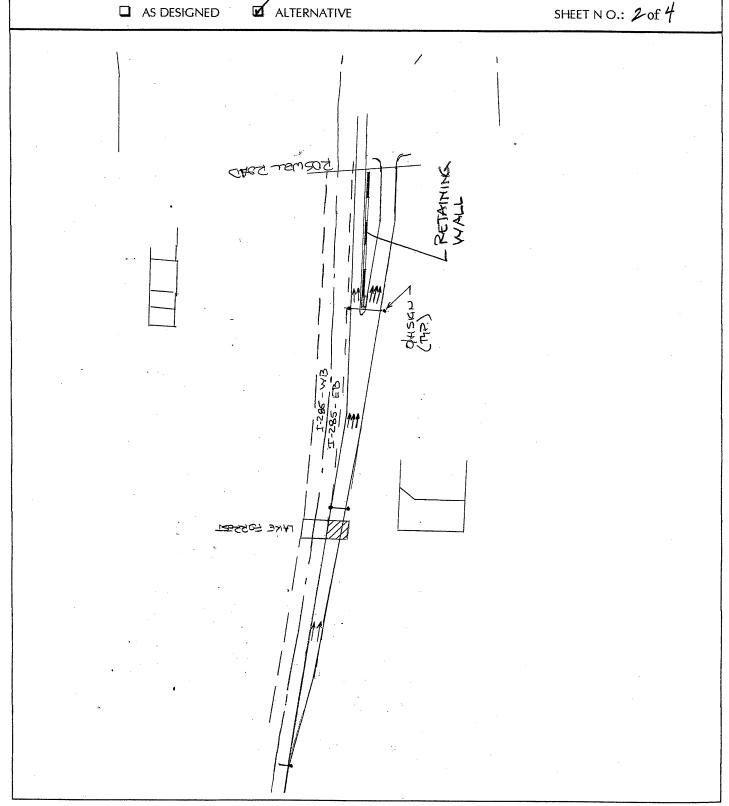
COST SUMMARY		INITIAL COST	PRESENT WORTH RECURRING COSTS		PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	0	3/4	\$	0	
ALTERNATIVE	\$	7,005,738	3/4	\$	7,005,738	
SAVINGS	\$	(7,005,738)	3/4	\$	(7,005,738)	

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.:

ALTERNATIVE



CALCULATIONS _



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES Concept Design Stage

ALTERNATIVE NO.:

DESCRIPTION:

SHEET NO.: 3 of 4

ADDITIONAL PAMP LENGTH REQUIRED - ZOOOH $2000 + \left(40 + \frac{1}{4000}\right) = 8900 \text{ yl}^2$

ADDITIONAL BRIDGE MEA

5000 fez

200 to 2000 /20 - 4,000 /2

COST WORKSHEET

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.

R-4

DESCRIPTION: SHEET NO. 4 of 4

CONSTRUCTION ITEM		C	RIGINAL E	STIMATE	PROPOSED ESTIMATE			
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL	
Bridge widening	SF				5,000	120.00	600,000	
Roadway / ramps	SY				8,900	50.00	445,000	
Retaining wall	SF				4,000	50.00	200,000	
Misc. / impact attenuators	LS						50,000	
Additional signage	LS						200,000	
Subtotal							1,495,000	
Markup at 20.25%							302,738	
Subtotal							1,797,738	
Right-of-way	AC				2	750,000.00	1,500,000	
Markup at 247.20%							3,708,000	
Subtotal							5,208,000	
Sub-total							7,005,738	
Mark-up at							Included	
TOTAL							7,005,738	



1 of 4

ALTERNATIVE NO.: R-6

SHEET NO.:

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: EXTEND/RELOCATE THE BEGINNING OF EASTBOUND

I-285 RAMP FURTHER WEST BEYOND LAKE FORREST

DRIVE

ORIGINAL DESIGN:

The current design starts the eastbound exit ramp from I-285 to Roswell Road just east of the Lake Forrest Drive bridge. There is no widening or bridge work on the Lake Forrest Drive structure.

ALTERNATIVE: (Sketch attached)

Begin the ramp to Roswell earlier, allowing for greater separation between it and the ramp to Glenridge Drive/SR400.

ADVANTAGES:

- Increases distance between ramps
- Longer ramp/more storage
- Allows for purchase of additional right-ofway

DISADVANTAGES:

- Requires bridge widening at the Lake Forrest Drive overpass
- Adds right-of-way required
- Adds work on Lake Forrest Drive

DISCUSSION:

This alternative would allow a greater distance between the eastbound (EB) Roswell Road exit and the EB Glenridge Drive/SR 400 ramp. Although there are additional cost and right-of-way implications, the benefit of moving the two ramps further apart is the improvement of operations and safety on I-285.

Additionally, a longer ramp would provide more vehicle storage, improving Roswell Road intersection movements. The distance of the ramp's movement will need to be evaluated for traffic conflicts farther west at the previous interchange—Riverside Road. Also, it would allow for additional right-of-way purchases to facilitate future improvements.

COST SUMMARY		INITIAL COST	PRESENT WORTH RECURRING COSTS		PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	0	3/4	\$	0	
ALTERNATIVE	\$	3,357,553	3/4	\$	3,357,553	
SAVINGS	\$	(3,357,553)	3/4	\$	(3,357,553)	



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND ALTERNATIVE NO.: INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES Concept Design Stage ☐ AS DESIGNED

CALCULATIONS



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES Concept Design Stage

ALTERNATIVE NO.:

DESCRIPTION:

SHEET NO.: 3 of 4

-ADDITIONAL BRIDGE WIST & LAKE FORMEST (125/2 WHG) (24 + HIDE) (120 /50FT) = 360,000

-ADDITIONAL PAMP / PONDUMY COSTS (2000) = 200,0000

ADDITIONAL GTZ.
1000 to e 20% = \$ 20,000

@LAKE FORMEST ASSUME 500 to - ZA to WIDE

500 th (24 ft) \frac{1}{9} + 35 \frac{4}{57} = \$\frac{4}{146,700}

COST WORKSHEET

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.

R-6

DESCRIPTION: SHEET NO. 4 of 4

CONSTRUCTION ITEM		C	RIGINAL ES	STIMATE	PROPOSED ESTIMATE			
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL	
Bridge widening	SF				3,000	120.00	360,000	
Roadway / ramps	SY				4,000	50.00	200,000	
Guardrail	LF				1,000	20.00	20,000	
Roadway - Lake Forrest Drive	SY				1,333	35.00	46,655	
Subtotal							626,655	
Mark-up at 20.25%							126,898	
Subtotal							753,553	
Right-of-way	AC				1	750,000.00	750,000	
Mark-up at 247.20%							1,854,000	
Subtotal							2,604,000	
Sub-total							3,357,553	
Mark-up at							Included	
TOTAL							3,357,553	

VALUE ENGINEERING ALTERNATIVE



ALTERNATIVE NO.: **R-10**

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: **EVALUATE LOCATION OF BRAIDED RAMP** SHEET NO.: 1 of 7

ORIGINAL DESIGN:

Use the current ramp design. **ALTERNATIVE**: (Sketch attached)

Study/develop/evaluate location of braided ramp.

ADVANTAGES:

- Combines exit ramps
- Improves traffic operations
- Eliminates proximity of two exit ramps
- Lowers construction cost
- Salvages value of walls
- Eliminates confusing ramp alignments

DISCUSSION:

DISADVANTAGES:

- Adds walls
- Adds work west of Lake Forrest Drive

The location and layout of the braided ramp should be studied more closely to provide the safest, most economical alternative available. During the presentation, the presenter noted that not much effort was spent in developing the vertical alignment or the continuation of the Glenridge/SR 400 exit ramp.

Some concerns within this area include the distance required to elevate the ramp to achieve minimum clearance, traffic maneuvers within the braid, sight distance concerns with any elevated structures, drainage issues at the creek crossing, and illegal crossovers from eastbound I-285 traffic.

Some solutions include shifting the location of the braid to a more desirable location. Depending on the vertical alignment and existing topography, reconsidering the connection point between the Roswell Road on-ramp and the Glenridge Drive/SR 400 ramp and realigning the ramps to improve the skew angles.

Another alternative investigated is combining the Roswell Road and Glenridge Drive/SR 400 ramps into one exit ramp from I-285. A sketch is included. This will provide the benefits of eliminating the two exit ramps off I-285, although it will require the decision point on the ramp. It will also require additional retaining walls to support the Roswell Road ramp. However, it will eliminate any new structure required for the braid. It should also fit within the alignment of the maximum, ultimate bridge width.

The Glenridge Drive/SR 400 part of the ramp would continue under the Roswell Road bridge and the ramp to Roswell Road would peel off and continue up to Roswell Road.

COST SUMMARY	INITIAL COST		PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	3,391,050	3/4	\$	3,391,050
ALTERNATIVE	\$	3,382,969	3/4	\$	3,382,969
SAVINGS	\$	8,081	3/4	\$	8,081

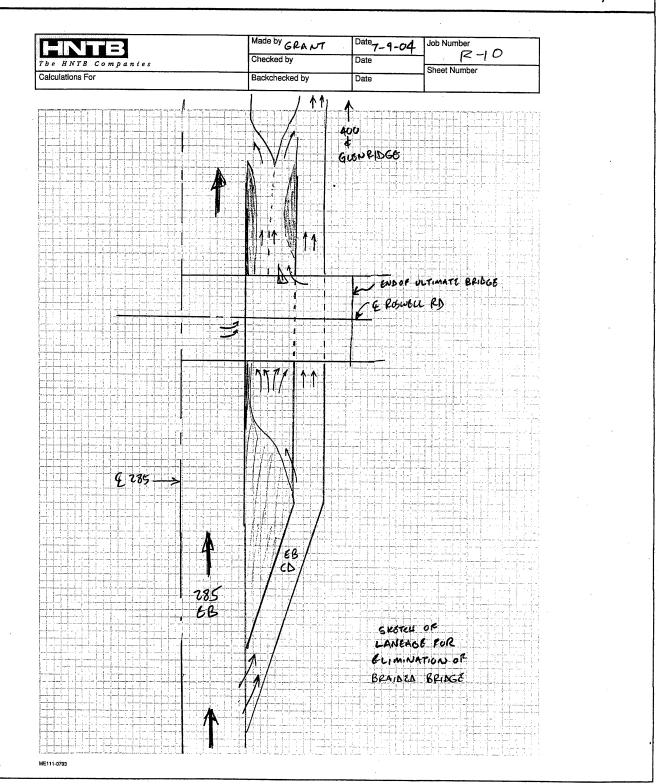


ALTERNATIVE NO.:

☐ AS DESIGNED

ALTERNATIVE

SHEET NO.: Zof 7



ALTERNATIVE NO.:

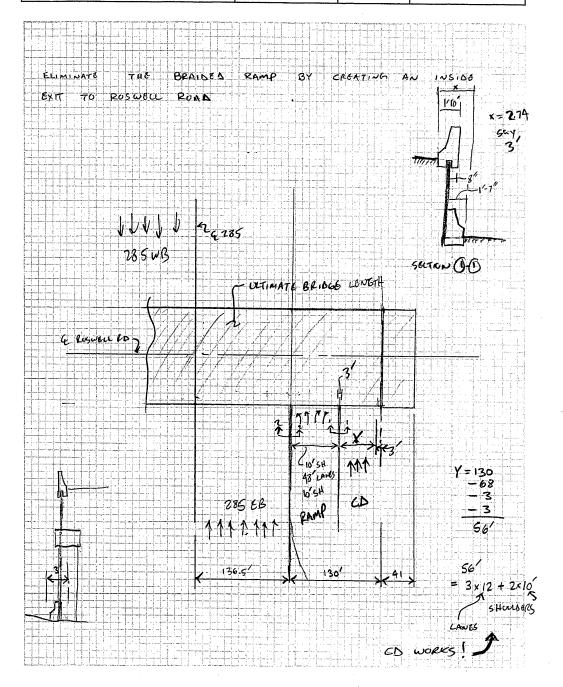
R-10

☐ AS DESIGNED

ALTERNATIVE

SHEET NO.: 3 of 7

The HNTB Companies	Made by GRANT Checked by	Date 7-9-04	Job Number P-10 Sheet Number
Calculations For	Backchecked by	Date	





ALTERNATIVE NO.:

R-10

☐ AS DESIGNED

ALTERNATIVE

SHEET NO.: 4 of 7

HNTB	Made by	Date	Job Number
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INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

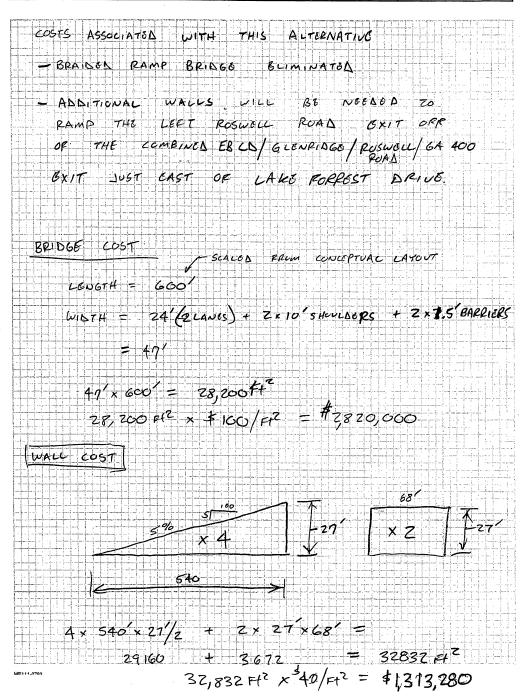
ALTERNATIVE NO .: R-10

☐ AS DESIGNED

ALTERNATIVE

SHEET NO.: 5 of 7

HNTB	Made by GRANT	Date 7-9-04	Job Number
The HNTB Companies	Checked by	Date	Sheet Number
Calculations For	Backchecked by	Date	





ALTERNATIVE NO.:

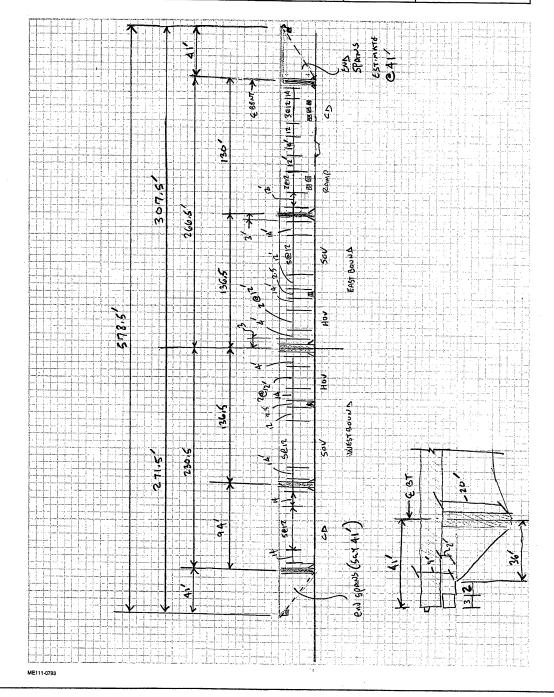
R-10

☐ AS DESIGNED

ALTERNATIVE

SHEET NO .: 60f 7

HNTB	Made by GRANT	Date 7-9-04	Job Number
The HNTB Companies	Checked by	Date	Sheet Number
Calculations For	Backchecked by	Date	_ Oncot Number



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.

R-10

DESCRIPTION: SHEET NO. 7 of 7

CONS	TRUCTION ITEM		ORIGINAL ESTIMATE		P	IMATE		
ITE	VI	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Bridge costs		LS			2,820,000			
Walls		LS						1,313,280
Additional work at I	ake Placid Drive	LS						1,500,000
and west	Auto I luciu Bilve							1,500,000
	Sub-total				2,820,000			2,813,280
Mark-up at	20.25%				571,050			569,689
	TOTAL				3,391,050			3,382,969

VALUE ENGINEERING ALTERNATIVE



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: CONSTRUCT A BRIDGE TO CONNECT SANDY SPRING

SHEET NO.:

ALTERNATIVE NO.: R-16

1 of 5

CIRCLE WITH COPELAND ROAD

ORIGINAL DESIGN:

A bridge to connect Sandy Springs Circle with Copeland Road (crossing I-285) is not a part of the original design.

ALTERNATIVE: (Sketch attached)

Provide a bridge to connect Sandy Springs Circle with Copeland Road for local traffic to cross I-285.

ADVANTAGES:

- Increases north/south connectivity across I-285 without using existing crossings
- The bridge can serve as a potential construction staging detour when the Roswell Road bridge is reconstructed

DISADVANTAGES:

- Adds construction cost
- Adds right-of-way cost

DISCUSSION:

This alternative may relieve local traffic off Roswell Road in the vicinity of the interchange and provide an alternate route in emergencies.

COST SUMMARY	INITIAL COST		PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST	
ORIGINAL DESIGN	\$	0	3/4	\$	0
ALTERNATIVE	\$	3,525,148	3/4	\$	3,525,148
SAVINGS	\$	(3,525,148)	3/4	\$	(3,525,148)

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

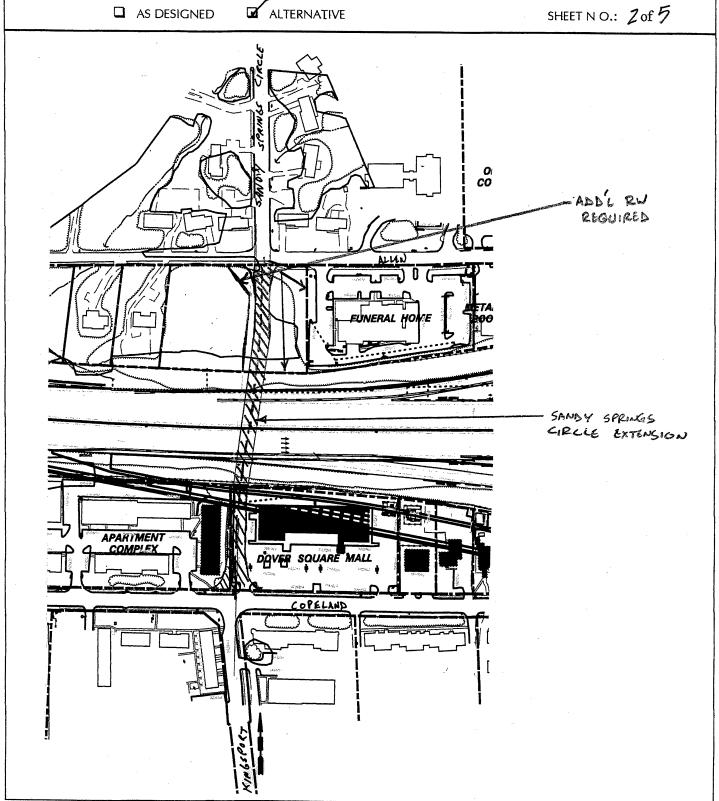
Concept Design Stage

☐ AS DESIGNED

ALTERNATIVE NO.:

R-16

SHEET NO.: Zof 5



ALTERNATIVE NO.:

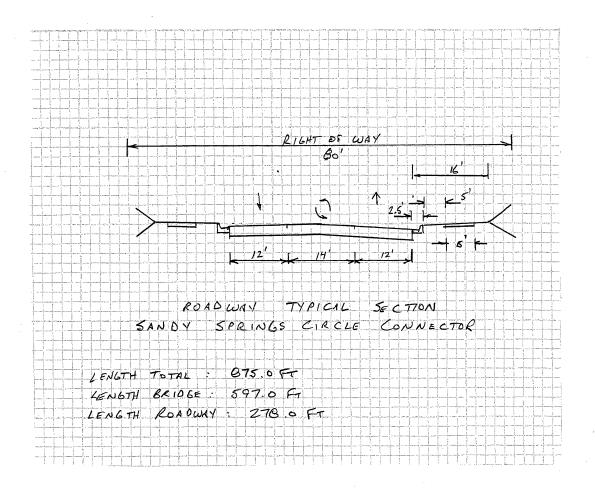
Concept Design Stage

R-16

☐ AS DESIGNED

□ ALTERNATIVE

SHEET NO.: 30f 5

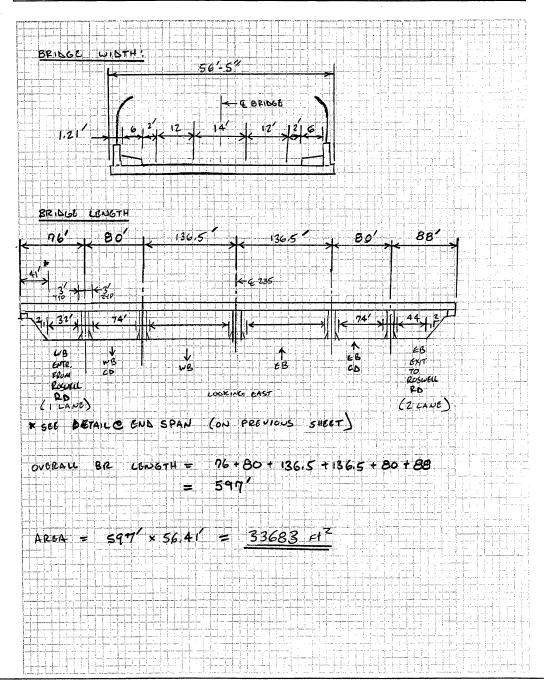


ALTERNATIVE NO.:

DESCRIPTION:

SHEET NO.: 4 of 5

HNTB	Made by	Date	Job Number
The HNTB Companies	Checked by	Date	2-16 Sheet Number
Calculations For	Backchecked by	Date	



COST WORKSHEET

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.

R-16

DESCRIPTION: SHEET NO. 5 of 5

CONSTRUCTION ITE	CONSTRUCTION ITEM ORIG		ORIGINAL E	STIMATE		PROPOSED ESTIMATE			
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL		
Asphalt pavement	SY				1,200	35.00	42,000		
In-place embankment	CY				5,000	6.00	30,000		
Approach slabs (two)	SY				360	80.00	28,800		
Concrete curb and gutter	LF				600	20.00	12,000		
Sidewalk - 4-inches thick	SY				375	35.00	13,125		
Erosion control	LS						25,000		
Signing and marking	LS						20,000		
Drainage	LS						25,000		
Bridge	SF				33,683	60.00	2,020,980		
Subt	otal						2,216,905		
Markup at 20.2	5%						448,923		
Subt	otal						2,665,828		
Di Lu G	4.0				0.22	750,000,00	247.500		
Right-of-way	AC				0.33	750,000.00	247,500		
Markup at 247.2 Subt							611,820 859,320		
Subt	otai						657,520		
Sub-to	otal						3,525,148		
Mark-up at							Included		
TO	ΓAL						3,525,148		

VALUE ENGINEERING ALTERNATIVE



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION: CHANGE RAMP PAVEMENT FROM ASPHALT TO

SHEET NO.:

ALTERNATIVE NO.: **R-17**

1 of 5

CONCRETE

ORIGINAL DESIGN: (Sketch attached)

The current cost estimate indicates all paving should be asphalt throughout the project.

ALTERNATIVE: (Sketch attached)

Use concrete pavement for all ramps.

ADVANTAGES:

- Better suited for turning and stopping
- FHWA may mandate

DISADVANTAGES:

- More costly initially
- May have to torn out when I-285/SR 400 interchange improvements are implemented

DISCUSSION:

Any pavement subject to continual vehicular stopping, starting, and turning should e constructed using a rigid pavement section in lieu of flexible pavement. The use of concrete pavement for all ramps will assure minimal maintenance and repair of the ramps and preclude asphalt "bumps" associated with stopping as layers tend to shear due to loading—especially during hot summer months.

COST SUMMARY	INITIAL COST		PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST		
ORIGINAL DESIGN	\$	610,028	\$ 4,602,644	\$	5,212,672	
ALTERNATIVE	\$	5,707,787	\$ 719,406	\$	6,427,193	
SAVINGS	\$	(5,097,759)	\$ 3,883,238	\$	(1,214,521)	

CALCULATIONS _



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

ALTERNATIVE NO.:

R-17

Concept Design Stage

RAMP I ROSWELL ROAD TO WB I-ZBS

W- 11

DESCRIPTION:

SHEET NO.: 2 of 5

APPROX. LEWGTH: 1,500 FT

APPROX. LEWGTH: 1,500 FT

APPROX. LEWGTH: 32 FT

14" PEM: (135 165/54) (5333 SN) (17N

2000 LB) (# 55/N) = \$19,780

12 MM SUPERPAVE: (165 165/54) (5333 SY) (17N

2000 LB) (# 45/N) = \$19,780

19 MM SUPERPAVE: (220 165/54) (5333 SY) (17N

2000 LB) (# 45/N) = \$19,780

25 MM SUPERPAVE: (20 165/SY) (5333 SY) (17N

2000 LB) (# 45/N) = \$126,400

ACPHALT SAVINGS => 68,360

LON CRETE:

(5333 SY) (\$ 120 (SY) = \$639,960 (ADDITIONAL CONCRETE COST)

NET ADDITIONAL COST RAMP 1 : \$571,600

RAMP 2 EASTROUND I. 285 TO ROSWELL KOND

APPROX. LENGTH: 2500 FT = 100,000 FT2 = 11,111 SY

RAMP 3 ROSWELL ROAD TO EASTBOUND I-205

APPROX LENGTH: 1500 FT } -> 48,000 F+2 FD 5.333 SY

RAMP 4 WEST BOUND I. ZOS TO ROSWELL ROAD

APPROX. LENGTH: 1500 FT } => 60,000 FT => 6,667 SY

RAMP 5 EASTBURD I-205 TO SR YOU

APROX. LENGTH: 2500 FT } => 100,000 FT => 11,11) SY

TOTAL 39,535 SY

ALTERNATIVE NO.:

Concept Design Stage

R-17

AS DESIGNED

CONCRETE SECTION

ALTERNATIVE

SHEET NO .: 3 of 5

(Delbinal	ASSUMED				
			1 4 "	PEM &	SUPERPAVE	(445 L)
***************************************			1/2"	12.5 MM	SUPERPAVE	(\$ 45 /TN)

					SUPER PAVE	(873 / N)
₹ 2	A P	Δ Δ <i>←</i>	12"	GAB		
					•	

AS DESIGNED

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				~	12 11	CONC	PVMT	
	RAZYAZIANIA KIROK REMAYZIANIA ERINDAZIEK ARABAD				5 ⁿ	25.0	MM	Super
¥	<u>ک</u>	A 7	Δ Δ 7		12"	GAB		

ALTERNATIVE

COST WORKSHEET

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND

INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

ALTERNATIVE NO.

R-17

DESCRIPTION: SHEET NO. 4 of 5

CONSTRUCTION ITEM			ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITE	И	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Ramp 1, 2, 3, 4, 5								
1-1/4" PEM		TN	2,670	55.00	146,850			
12 mm superpave		TN	3,263	45.00	146,835			
19 mm superpave		TN	4,351	45.00	195,795			
25 mm superpave		TN	396	45.00	17,820			
Concrete pavement		SY				39,555	120.00	4,746,600
	Sub-total				507,300			4,746,600
Mark-up at	20.25%				102,728			961,187
-	TOTAL				610,028			5,707,787

LIFE CYCLE COST WORKSHEET

ALTERNATIVE NO.

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

R-17

Concept Design Stage

1 1

								SHEET NO.	5 of 5
LIF	E CYCLI	E PERIOD:	35	years					
INT	EREST	RATE:	3.00%	ESCALATION	I RATE:	5.00%		ORIGINAL	PROPOSED
A.	INITIAI	COST						610,028	5,707,787
	Useful	Life (Years)					± 7	± 35
						INITIAL CO	ST SAVINGS		(5,097,759)
В.	RECU	RRENT COS	STS (Annual	Expenditures)					
	1. M	aintenance:	Assume 2.5	0% of initial cost of	asphalt			15,251	
	2. M	aintenance:	Assume 0.2	5% of initial cost of	concrete				14,269
	3.								
	4.								
	5.								
	6.								
						Total A	Annual Costs	15,251	14,269
						Present \	Worth Factor	50.4158	50.4158
				Pı	resent Wor	th of RECURF	RENT COSTS	768,876	719,406
C.		E EXPENDI			Year	Amount	PW factor	Present Worth	Present Worth
ORIG				(original design or					
Х	1.			s every 7 years	7	353,156	1.1441	404,047	-
X	2.		•	s every 7 years	14	353,156	1.3090	462,270	-
X	3.	1		s every 7 years	21	353,156	1.4976	528,884	-
X	4.	-	•	s every 7 years	28	353,156	1.7134	605,097	-
X	5.		•	rs every 15 years	15	588,600	1.3344	785,419	-
X	6.	Replace	top four laye	rs every 15 years	30	588,600	1.7806	1,048,051	-
	7.						1.0000	-	-
	8.						1.0000	-	-
D.		GE VALUE			Year	Amount	PW factor	Present Worth	Present Worth
	1.						1.0000	-	-
	2.						1.0000	-	-
						f SINGLE EXF	PENDITURES	3,833,768	-
E.	Total F	Recurrent C	osts & Singl	e Expenditures (B	+ C)			4,602,644	719,406
			RECURR	ENT COSTS & S	INGLE EX	PENDITURE	S SAVINGS		3,883,238
				TOTAL	PRESEN	T WORTH C	OST (A + D)	5,212,672	6,427,193
					TOTA	L LIFE CYCL	E SAVINGS		(1,214,521)

PROJECT DESCRIPTION

PROJECT DESCRIPTION

This project is located in the Sandy Springs area of Fulton County. The project includes 0.6 miles of Roswell Road improvements from Lake Placid Drive (milepost (MP) 10.23) to Cliftwood Drive (MP 10.70) including replacing the bridge over I-285, and 1.44 miles of braided ramps to and from I-285 as shown on the following sketch. Left turn lanes and storage for left turns, a raised median, bicycle lanes, and sidewalks are included on Roswell Road. The new bridge will be designed with provisions for full shoulders and HOV lanes on I-285. The braided ramp parallels the I-285 eastbound direction for exiting to Glenridge Drive and S.R. 400 to eliminate the merge/weave with the Roswell Road entrance ramp. The termini allow for vertical tie-in on the southern side of the project and realignment of an operationally deficient intersection at Carpenter Drive and Cliftwood Drive on the northern side.

COSTS

The current probable cost of construction has been identified at \$93,460,620. This figure is composed of \$74,943,200 of right-of-way purchases and \$18,317,420 for actual construction as noted on the Preliminary Cost Estimate for NHS-0000-00(247) I-285@ Roswell Road Bridge Replacement and Associated Roadway Improvements; Braided Ramp for I-285 to S.R. 400 for Glenridge and GA 400, dated May 12, 2003. The project contains an engineering and construction contingency of 10.00% and an inflation of rate of 10.25% (based on 5.00% per annum for two years).

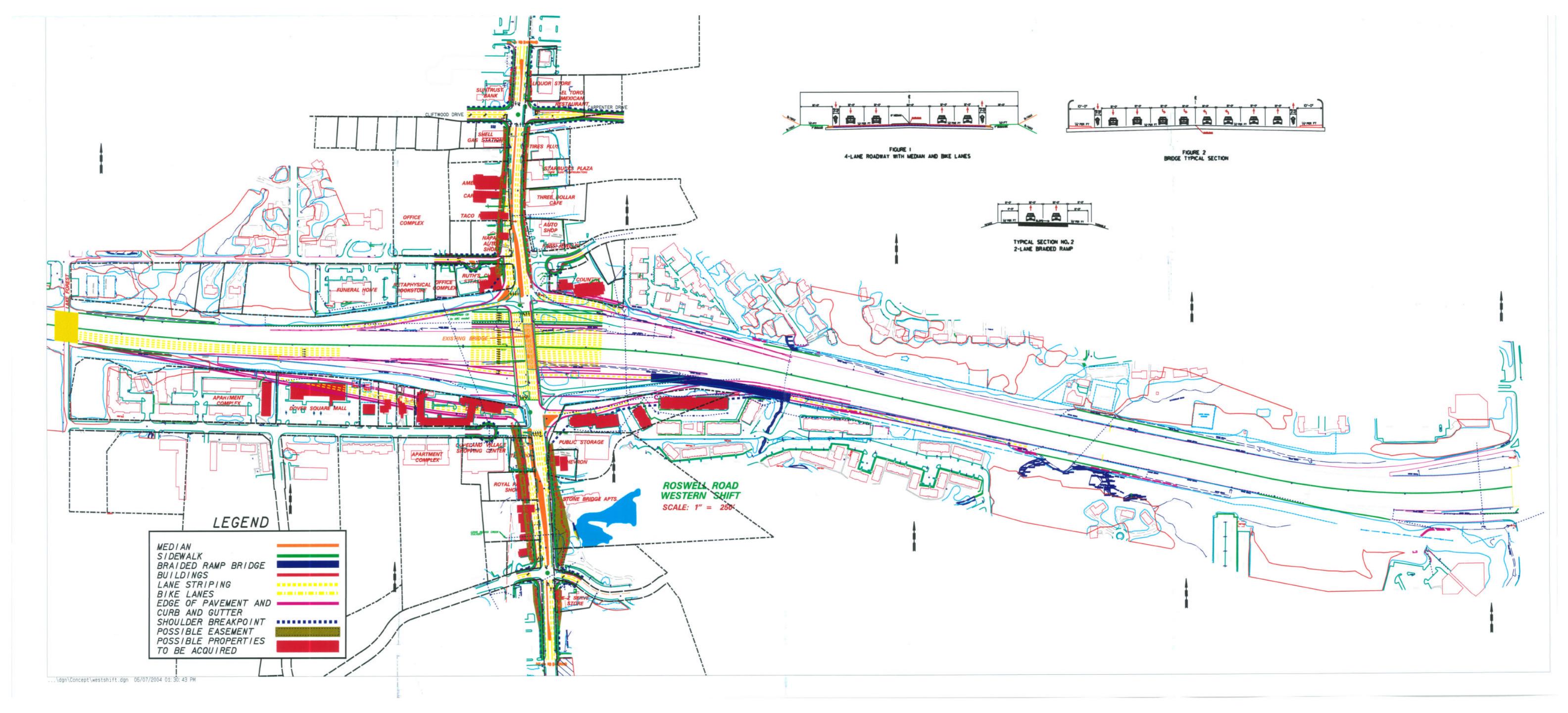
PRELIMINARY ALTERNATES HISTORY

The U.S. Interstate Highway 285 (I-285) at the Roswell Road Interchange (NHS-0000-00(247); P.I. 0000247) project consists of a bridge replacement and roadway improvements on Roswell Road at I-285. The project would improve the operation and safety of the I-285/Roswell Road interchange and provide better sidewalks for pedestrians and bike lanes. The limits of the project are from Lake Placid Drive, south of the interchange, to Cliftwood Drive, north of the interchange. Provisions for full shoulders, HOV lanes, and operational improvements on I-285 will be included.

The Roswell Road at I-285 Interchange was originally studied as a part of the Reconstruction of the SR 400/I-285 Interchange Corridor Study (NH-IM-285-1(370); P.I. No. 713030) that was performed in 1995 and 1996 by the firm of Parsons, Brinckerhoff, Quade & Douglas, Inc. In 1999, Fulton County identified this corridor for improvement. During the concept phase it was decided by the Office of Urban Design that this project could use the input of a Civic Advisory Committee (CAC). The firm of Arcadis, Geraghty & Miller, Inc. (AGM) was hired to facilitate the CAC. The CAC met on August 15, 2001, and September 27, 2001, to discuss the possible alternates.

Several alternates were identified throughout the initial concept phase of the project as possible interchange designs (see Appendix A):

• The Split Diamond Interchange – (identified as a part of the SR 400/I-285 project) – this alternate used Sandy Springs Circle as the second bridge over I-285;



- The Single-point Urban Interchange (SPUI) (identified as a part of the Civic Advisory Committee meeting #1);
- The Partial Cloverleaf Interchange (identified as a part of the CAC meeting #2); and
- The Tight Urban Diamond Interchange (TUDI) (identified by the Office of Urban Design).

Urban Design and AGM analyzed these alternates for traffic feasibility and geometric restrictions. The alternate the CAC decided to take to the public information meeting (PIM) is the Tight Urban Diamond Interchange. The additional options shown at the PIM include:

- Realignment of Cliftwood Drive and Carpenter Drive suggested by the Office of Urban Design and agreed upon by the CAC and Fulton County;
- Shifting the alignment both east and west for stage construction (cannot be symmetrical since the bridge will be higher) to show right-of-way impacts;
- Adding braided ramps to the southern side of I-285 to eliminate the weave between Roswell Road entrance traffic and SR 400 and Glenridge Drive exiting traffic;
- Creating cul-de-sacs at Allen Road and Northwoods Drive due to the proximity of the ramps; and
- Upsizing the Northwoods Drive cul-de-sac and the Lake Placid Drive western radii to accommodate the proposed new Metropolitan Atlanta Rapid Transit Authority (MARTA) route.

The PIM was conducted on November 29, 2001, at Highpoint Elementary School. A total of thirty-six people attended and sixty-eight comments were received. Fifteen verbal statements and twenty comment forms were received during the meeting. An additional thirty-three comments were received after the meeting during the 10-day comment period.

Thirty-seven of the comments were in support of a Tight Urban Diamond Interchange. Of these, twenty-five favored a western shift, eight offered no preference, and four favored an eastern shift. Nine of those commenting were opposed to the project. In addition, six of those commenting were uncommitted; eleven comments were a conditional yes; and five comments were a conditional no. Some of the major concerns included:

- Existing and potential increased noise from I-285. Noise walls were requested;
- The need for additional greenspace along the corridor. The possible elimination of oak trees north of I-285 was also a concern;
- The median deterring customers, which was a concern of some business owners. Business owners were also concerned about the loss of property (decks and parking) with the western alignment selection;
- The potential loss of MARTA Route 5;
- Pedestrian safety; and
- Long Island Creek drainage basin.

Another project involvement meeting occurred on February 25, 2002, at the request of the Long Island Creek Watershed Preservation Association (LICWPA) at the St. Andrews Church on Riverside Drive. The meeting was similar to a PIM with a presentation section where the project was described by GDOT. Notably in attendance was Joe Wilkinson, a State Representative for Atlanta.

The CAC met again on April 3, 2002, to discuss the outcome of the PIM. There were several concerns raised by the citizens that included:

- Noise abatement;
- Elimination of greenspace and oak trees;
- Access to businesses;
- Median;

- Loss of property;
- MARTA route;
- Pedestrian safety;
- Bicycle safety;
- Landscaping;
- Impact on Long Island Creek Watershed;
- Right-of-way costs; and
- Utility relocation costs.

Votes were taken on various items for a consensus. Eight out of twelve CAC members voted for the tight urban diamond interchange. The other four preferred the "no build" option. All 12 members favored the braided ramp.

While eight out of twelve favored the western shift (four voted no preference), most CAC members did not feel comfortable making a decision on the eastern vs. western shift at this time. The CAC members felt several key changes had occurred since the last meeting which required further discussion. One major change was that the elevations needed for construction were originally favoring a western shift. This is no longer the case. The CAC members would like to take the time, since both options are valid from a construction standpoint, to review the cost issues and impacts to the properties.

The CAC met for the final time on April 29, 2002. The symmetrical, western, and eastern shift design plans were presented and discussed.

SYMMETRICAL

GDOT gave a brief explanation of the symmetrical design at the request of Mr. Blichfeldt. Mr. Blichfeldt wanted to be reminded of the reasons the design was less feasible. The symmetrical design is not as feasible because of the number of property takings, costs, and the increased construction difficulty.

Western Shift

Pros:

- Possibly save trees on the northeast quadrant;
- Possibly allow for the better assemblage of land (less postage stamp-style development);
- Chance of improved access from Northwood (right out or right in);
- Possible reduction of curb cuts;
- Less impact to the Long Island Creek Watershed; and
- Improved visual appearance.

Cons:

- There will be more businesses lost on the west side;
- There is an increased ROW cost because of the number of businesses displaced (an additional \$4 million to \$14 million total cost);
- There is potentially less opportunity for access control north of I-285; and
- There is potentially less opportunity for assemblage of businesses north of I-285.

Eastern Shift

Pros:

- The businesses southwest of I-285 will remain viable; and
- There will be fewer businesses lost with the eastern vs. western shift.

Cons:

- There will be more trees eliminated;
- It will be less likely that a bus pull-out will occur south of Northwood; and
- There is probable lake sedimentation.

The CAC recommended a Tight Urban Diamond Interchange with braided ramps shifted to the eastern side of Roswell Road. The votes were as follows:

- Western Shift five votes; and
- Eastern Shift nine votes.

Two of the nine votes in favor of the eastern shift were taken by proxy. GDOT will request formal letters from the proxy voters.

There were several additional recommendations made by the CAC regarding the bridge and interchange as follows:

- Use the highest possible standards for environmental review;
- Use the highest possible standards for an aesthetically pleasing bridge;
- Once completed, provide the CAC with the Environmental Assessment (EA) document;
- Review right ins and outs for all intersections impacted by the interchange design;
- Use Sandy Springs Revitalization Initiative (SSRI) design overlays for streetscaping and sidewalks; and
- Coordinate with an urban designer/planner to mitigate traffic impacts associated with restricted access.

A second PIM was held on July 10, 2002. The eastern shift was presented for comment by the public. Over 100 e-mails/letters were sent to various GDOT authorities to save the large oak tree previously mentioned. The GDOT has decided to move forward into the environmental process with the western shift alignment of Roswell Road. GDOT's decision was based on the overwhelming public support of the western shift since the July 10, 2002 PIM, as well as other factors, including right-of-way costs.

The right-of-way costs kept increasing and moving closer together. Originally the symmetrical widening cost was \$12,731,100 as of October 31, 2000. This assessment was done with conceptual drawings on photography. On March 26, 2002, an assessment was done on the eastern and western shifts using topographical conceptual displays. The west was \$48,000,400 and the east was \$33,600,000. These amounts were presented to the CAC who used them as one of their criterion for the eastern decision. On August 9, 2002, an assessment was done using updated topographical conceptual displays with cut/fill limits shown. The west became \$74,943,200 and the east became \$72,235,000 including the taking of Ruth Chris' Steakhouse. With the difference being "only" \$2,000,000 (relatively) and the possibility of a lawsuit from Ruth Chris' Steakhouse for damages, the decision to go west was made.

ALTERNATIVE DESCRIPTIONS – ALTERNATE 1

Single-Point Urban Interchange



Description: A Single-Point Urban Interchange (SPUI) is an interchange which resembles a classic diamond except the ramps are placed closer together to make them effectively part of the same intersection. This allows one traffic signal to control all crossing movements, and enables concurrent opposing left turns, which increases the capacity of the interchange. All directional traffic volumes need to be similar.

PROS

A SPUI allows concurrent left turns

CONS

- Multilane ramps can lead to very large areas of uncontrolled pavement
- A SPUI would have a wider, more costly bridge than a diamond interchange
- Complex intersection and signal phasing may be unfamiliar to drivers
- A SPUI does not accommodate pedestrian traffic easily
- Concurrent left turns may reduce through lane capacity
- Very high construction costs due to large bridge structure
- All directional traffic volumes need to be similar

CAC Decision: The Civic Advisory Committee decided the SPUI would not meet all the needs of the surrounding communities and felt pedestrian travel was essential in the area, which would be severely restricted with a SPUI. In addition, the width of a SPUI bridge was considered unacceptable.

<u>ALTERNATIVE DESCRIPTIONS – ALTERNATE 2</u>

The No Build Option

Description: With any Georgia Department of Transportation (GDOT) project the No Build option is always there. This option means that reconstruction of the interchange is not prudent or feasible due to any number of reasons.

PROS CONS

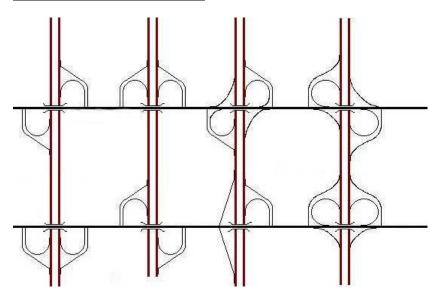
• The No Build option costs nothing

- The No Build option does not address the current and future traffic needs of the corridor
- Any work done on I-285 would cause the bridge to be replaced at some future date even if no Roswell Road improvements were done

CAC Decision: The Civic Advisory Committee decided the No Build option would not meet all the needs of the surrounding communities and felt reconstruction of this interchange is necessary due to current traffic congestion and future traffic needs of the corridor.

ALTERNATIVE DESCRIPTIONS – ALTERNATE 3

Partial Cloverleaf Interchange



Description: The Partial Cloverleaf (parclo) is an interchange that puts curved ramps in one or more quadrants of the interchange. It is generally used where the turning and weaving volumes are relatively low. This type of interchange eliminates crossing conflicts found in a diamond interchange but requires more area.

PROS

• Suitable for large volume turning movements on one of the two roadways

CONS

- Right-of-way requirements are large for the cloverleaf ramps
- Creates poor operations when both roadways have a high volume
- Loop ramp does not promote pedestrian movements

CAC Decision: The Civic Advisory Committee decided the Parclo option would not meet all the needs of the surrounding communities and felt the right-of-way requirements of the parclo would not be feasible for a congested urban area such as Roswell Road.

<u>ALTERNATIVE DESCRIPTIONS – ALTERNATE 4</u>

Split Diamond Interchange



Description: A Split Diamond Interchange uses two bridges in close proximity to one another and one-way frontage roads to connect the bridges.

PROS

 Accommodates higher volumes of traffic by making Roswell Road and Sandy Springs Circle one-way roads

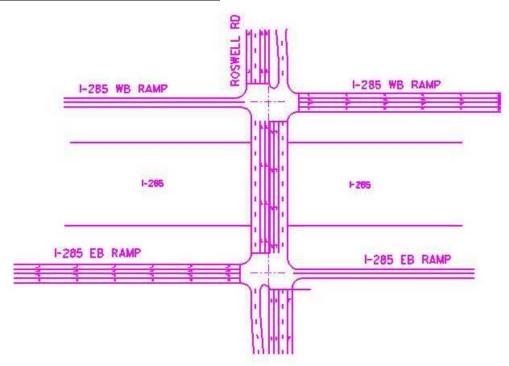
CONS

- Roswell Road and Sandy Springs Circle would have to become one-way roads which limits access
- Construction costs are high for two bridges

CAC Decision: The Civic Advisory Committee decided the Split Diamond option would not be feasible at this time because the building and use of Sandy Springs Circle as the second bridge of the split diamond would have to be approved by Fulton County. The Fulton County representative stated they would look into the feasibility of this project; however, funding and timing would be an issue. Also, the Sandy Springs extension is not in the Atlanta Regional Commission (ARC) model.

<u>ALTERNATIVE DESCRIPTIONS – ALTERNATE 5</u>

Tight Urban Diamond Interchange



Description: The Tight Urban Diamond Interchange (TUDI) is a diamond interchange, which minimizes the distance between ramp and cross-road intersections. Signalizing is crucial to allow turning movements and through movements to operate properly.

PROS CONS

- Does not require a complete re-working of the interchange
- Pedestrian friendly interchange allowing for larger sidewalks
- Gives a large storage area for left and through movements
- Does not preclude the Split Diamond Interchange design

 Requires additional bridge width and rightof-way for turning lanes and approach lanes

VALUE ANALYSIS AND CONCLUSIONS

GENERAL

This section describes the value analysis procedure used during the value engineering study. It is followed by separate narratives and conclusions concerning:

- Value Engineering Workshop Participants
- Economic Data
- Cost Estimate Summary and Cost Histograms
- Function Analysis
- Creative Idea Listing and Judgment of Ideas

A systematic approach was used in the VE study and the key procedures involved were organized into three distinct parts: 1) preparation; 2) VE workshop; and 3) post-study. A Task Flow Diagram that outlines each of the procedures included in the VE study is attached for reference.

PREPARATION EFFORT

Pre-study preparation for the VE effort consisted of scheduling study participants and tasks; gathering necessary background information on the facility; and compiling project data into a cost model and graphic cost histogram. Information relating to the design, construction, and operation of the facility is important as it forms the basis of comparison for the study effort. Information relating to funding, project planning operating needs, systems evaluations, basis of cost, soil conditions, and construction of the facility was also a part of the analysis.

VALUE ENGINEERING WORKSHOP EFFORT

The VE workshop was a three-day effort (see attached agenda). During the workshop, the VE job plan was followed. The job plan guided the search for high cost areas in the project and included procedures for developing alternative solutions for consideration. It includes six phases:

- Information Phase
- Function Identification and Analysis Phase
- Creative Phase
- Evaluation Phase
- Development Phase
- Presentation Phase (*Not conducted*)

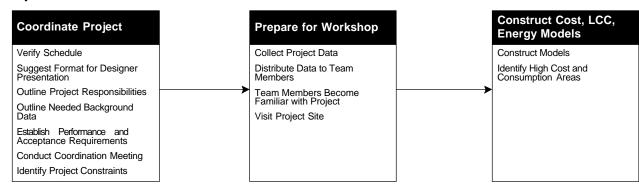
Information Phase

At the beginning of the study, the conditions and decisions that have influenced the development of the project must be reviewed and understood. For this reason, the development manager presented information

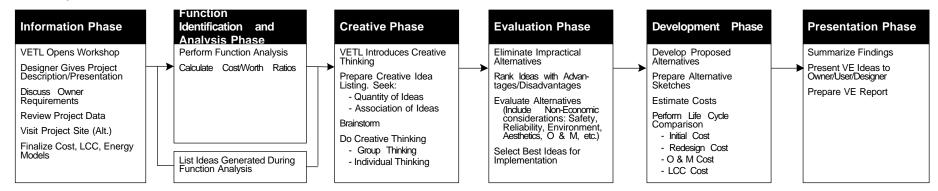


Value Engineering Study Task Flow Diagram

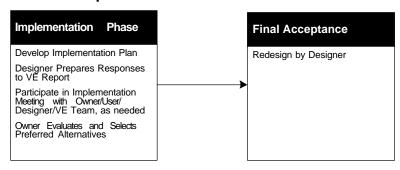
Preparation Effort



Workshop Effort



Post-Workshop Effort



about the project to the VE team on first day of the session. Following the presentation, the VE team discussed the project using the following documents:

- Small Scale Concept Drawing entitled Westshift of proposed Interchange Improvements to Roswell Road at Interstate Highway 285 from Lake Placid to Clifton Drives, Fulton County, Georgia, Project No. NHS-0000-00(247), P. I. No.0000247, prepared by the Department of Transportation, State of Georgia, undated;
- *Project Concept Report* for the Project No. NHS-0000-00(247), County: Fulton, P. I. No.0000247, prepared by the Department of Transportation, State of Georgia, Office of Urban Design, Federal Route Number: I-285 Roswell Rd: US 19, State Route Number: I-285: SR 207; Roswell Rd: SR 9; dated March 28, 2003;
- West Shift Cost Estimate, Preliminary Cost Estimate for NHS-0000-00(247) I-285@ Roswell Road Bridge Replacement and Associated Roadway Improvements; Braided Ramp for I-285 to S.R. 400 for Glenridge and GA 400, dated May 12, 2003; and
- Conceptual Development Preliminary Alternatives History for the I-285 @ Roswell Road Interchange (NHS-0000-00(247); P.I. 0000247), prepared by Georgia Department of Transportation undated.

Function Identification and Analysis Phase

Based on historical and background data, a cost model and graphic function analysis were developed for this project by major construction elements. They were used to distribute costs by project element; serve as a basis for alternative functional categorization; and to assign worth to the categories, where worth is the least cost to provide the required function, as determined by the VE team. The VE team identified the functions of the various project elements and subsystems by using random function generation techniques resulting in the attached Random Function Analysis worksheet and Function Analysis Systems Technique (F.A.S.T.) diagram.

Creative Phase

This phase involved the creation and listing of ideas. Creative idea worksheets were organized by project element. During this phase, the VE team developed as many ideas as possible to provide the necessary functions within the project at a lower cost to the owner, or to improve the quality of the project. Judgment of the ideas was restricted at this point. The VE team was looking for a large quantity of ideas and free association of ideas.

Georgia Department of Transportation (GDOT) personnel may wish to review the creative list since it may contain ideas that can be further evaluated for potential use in the design.

Evaluation Phase

During this phase of the workshop, the VE team judged the ideas generated during the creative phase. Advantages and disadvantages of each idea were discussed to find the best ideas for development. Ideas found to be irrelevant or not worthy of additional study were discarded. Those that represented the greatest potential for cost savings or improvement to the project were then developed further.

The VE team would like to develop all ideas, but time constraints usually limit the number that can be developed. Therefore, each idea was compared with the present schematic design concepts, in terms of how well it met the design intent. Advantages and disadvantages were discussed, and each team member rated

the ideas on a scale of zero to five, with the best ideas rated five. Total scores were summed for each idea and only highly-rated ideas were developed into alternatives. In cases where there was little cost impact, but an improvement to the project was anticipated, the designation design suggestion (DS), was used.

The creative listing was re-evaluated frequently during the process of developing alternatives. As the relationship between creative ideas became more clearly defined, their importance and ratings may have changed, or they may have been combined into a single alternative. For these reasons, some of the originally high-rated items may not have been developed into alternatives.

Development Phase

During the development phase, each highly rated idea was expanded into a workable solution. The development consisted of a description of the alternative, life cycle cost comparisons, where applicable, and a descriptive evaluation of the advantages and disadvantages of the proposed alternatives. Each alternative was written with a brief narrative to compare the original design to the proposed change. Sketches and design calculations, where appropriate, were also prepared in this part of the study. The VE alternatives are included in the section entitled *Study Results*.

Presentation Phase

The last phase of the VE study would have been to present the findings of the study; however, GDOT now conducts the presentation internally upon receipt of the report. The VE alternatives were screened by the VE team before draft copies of the *Summary of Potential Cost Savings* worksheets were provided to GDOT representatives. The VE alternatives were arranged in the same order as the idea listing sheets to facilitate cross-referencing.

POST-WORKSHOP EFFORT

The post-study portion of the VE study includes the preparation of this VE Study Report. Personnel from GDOT will analyze each alternative and prepare a short response, recommending either incorporating the alternative into the project, offering modifications before implementation, or presenting reasons for rejection. Lewis & Zimmerman Associates, Inc. is available at your convenience as GDOT reviews the alternatives. Please do not hesitate to call on us for clarification or further information as GDOT considers an implementation approach.

VALUE ENGINEERING STUDY AGENDA

Lewis & Zimmerman Associates, Inc. (LZA) will conduct a 24-hour VE Study on the Interchange Improvements to Roswell Road at Interstate 285 from Lake Placid Drive to Clifton Drive, Project No. NHS-0000-99 (247), P.I. No. 0000247, located in Fulton County, Georgia. It is expected the owner, the Georgia Department of Transportation (GDOT) will be available to make a formal presentation concerning the project at the beginning of the workshop and be available to answer questions during the VE study effort.

VE Study Agenda

The VE study will follow the outline described below and be conducted July 7 - 9, 2004. The study will be conducted in Room 274 in GDOT's General Office located at No. 2 Capitol Square Street, Atlanta, Georgia 30334. The point-of-contact is Ms. Lisa L. Myers, Design Review Engineer Manager, who can be reached at 404-651-7468.

Wednesday, July 9th

9:00 am - 9:15 am General Introduction of all Parties and review of the VE Process

9:15 am - 11:15 am **Owner's/Designer's Presentation**

GDOT is to present information concerning the project including, but not necessarily limited to: rationale for design; criteria for specific areas of study, project constraints and the reasons for design decisions.

11:15 am - 12:00 noon Commence Function Analysis Phase

The VE team will continue their familiarization with the cost models and project data for each area of study. The cost model(s) will be refined, as necessary; define the function of each project element or system in the cost model, select the primary or basic functions, and determine the worth, or least cost, to provide the function. Cost/worth or value index ratios will be calculated, and high cost/low worth areas for study identified. In addition, the VE team will continue defining the function of each element/system to gain a thorough understanding of the project's needs and requirements.

12:00 noon - 1:00 pm **Lunch**

1:00 pm - 5:00 pm Conclude the Function Analysis Phase and Commence the Creative Phase

The VE team will conduct a brainstorming session and list as many ideas as possible for consideration. The aim is to obtain a large quantity of ideas through free association, by eliminating roadblocks to creativity and deferring judgment.

Tuesday, July 8th

8:30 am - 10:00 am Conclude Creative Phase and Complete Evaluation/Analytical

Phase

The VE team will analyze the ideas listed in the creative phase and select the best ideas for further development.

10:00 am - 12:00 noon **Development Phase**

VE team will develop creative ideas into alternate design solutions. Initial and life cycle cost estimates comparing original and proposed alternatives will be prepared. Selected alternatives for change will be developed and supported with sketches, calculations and written substantiation.

12:00 noon - 1:00 pm **Lunch**

1:00 pm - 5:00 pm Continue Development Phase

Wednesday, July 9th

8:30 am - 12:00 am **Continue Development Phase**

12:00 noon - 1:00 pm **Lunch**

1:00 pm - 4:00 pm Conclude Development Phase and Commence Summary

Worksheets

Upon completion of the Development Phase, the VE facilitator will commence preparation of the summary worksheets based on the alternatives developed by the VE team. The summary work sheets form the basis of the informal oral presentation.

4:00 – 5:00 pm Finalize Summary Worksheets

The VE team will provide draft copies of the *Summary of Potential Cost Savings* worksheets to GDOT representatives and be available to clarify any points.

VALUE ENGINEERING WORKSHOP PARTICIPANTS

The VE team was organized to provide specific expertise on the unique project elements involved. Team members consisted of a multidisciplinary group with professional design experience and a working knowledge of VE procedures. The VE team included the following professionals:

George A. Obaranec, PE Civil/Roadway Engineer Delon Hampton & Associates, Chartered

Gregory C. Grant, PE Director, Structural Engineering, HNTB

Bridge Engineer

Timothy L. Heilmeier, PE Associated Vice President, HNTB

Roadway Engineer

Thinh D. Phan Professional Development U.S. Department of Transportation

Participant Federal Highway Administration

Luis M. Venegas, PE, CVS VE Facilitator Lewis & Zimmerman Associates, Inc.

OWNER'S/DESIGNER'S PRESENTATION

Representatives from the State of Georgia Department of Transportation (GDOT) administration and design team presented an overview of the project on Wednesday, July 7, 2004. The purpose of this meeting, in addition to being an integral part of the Information Gathering Phase of the VE Study, was to bring the VE team "up-to-speed" regarding the overall project. Additionally, the meeting afforded the design team the opportunity to highlight in greater detail those areas of the project requiring additional or special attention.

A copy of the meeting participants is attached for reference.

VALUE ENGINEERING TEAM'S FINAL PRESENTATION

The VE team did not conduct a final, oral presentation to GDOT on Friday, July 9, 2004. However, copies of the draft *Summary of Potential Cost Savings* worksheets were provided for interim use by GDOT personnel.

VALUE ENGINEERING STUDY PARTICIPANTS

DATE: **July 7 – 9, 2004**

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

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Larry Smith, PE	GDOT, Office of Urban Design	ph: 404-656-5440
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Thinh D. Phan	US DOT, FHWA	ph: 404-562-3651
em: thinh.phan@fhwa.dot.gov	Professional Development Participant	fx: 404-562-3703

VALUE ENGINEERING STUDY PARTICIPANTS

DATE: **July 7 - 9, 2004**

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

NAME & E-MAIL (PLEASE PRINT)	ORGANIZATION/TITLE	PHONE/FAX
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ECONOMIC DATA

The VE team developed economic criteria used for evaluation with information gathered from the State of Georgia Department of Transportation. To express costs in a meaningful manner, the VE team alternatives are presented on the basis of discounted present worth. Criteria for planning project period interest rates are based on the following parameters:

Year of Analysis: 2004

Construction Start Up: Unknown

Construction Duration: ± 24 Months

Economic Planning Life: 50 years

Discount Rate/Interest: 3.00% (Latest United States Office of

Management and Budget Circular A-

94)

Inflation/Escalation Rate: 5.00% (GDOT)

Uniform Present Worth (UPW) Factor: 21.4872 for 35 years

25.7298 for 50 years

20.25% (1.2025)

Operation and Maintenance Costs (*Industry Norms*):

Structural 1.00%-2.00% (or less) of Capital Cost

Overall Composite Mark-Up for Bricks and Mortar:

(Composed of: Inflation [minus ROW costs] at 5.00% for two years for a factor of 10.25%, and E&C [minus ROW

costs] at 10.00%)

Composite Mark-Up for Right-of-Way: 147.21% (2.4720)

(Composed of: Schedule Contingency at 55.00%, Administration/Court Costs at 60.00%, and Inflation

Factor at 40.00%)

COST ESTIMATE SUMMARY AND COST HISTOGRAMS

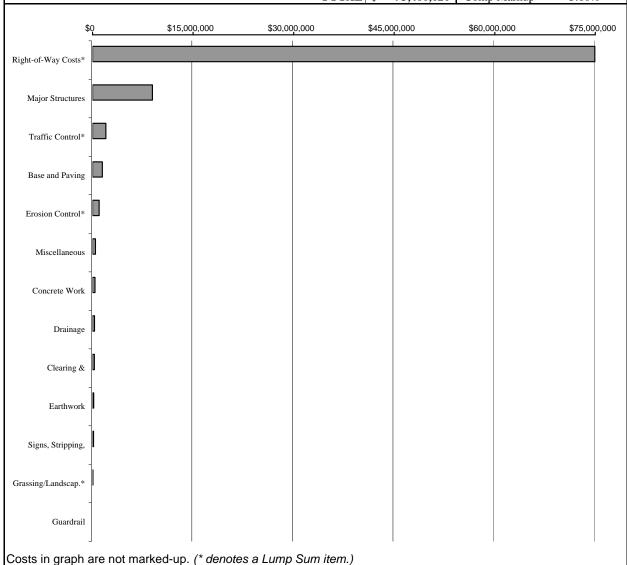
The VE team prepared various cost models for the project that are included on the following pages. The cost models are arranged in the Pareto Charting/Cost Histogram format to aid in identifying high cost areas and are based on the *Preliminary Cost Estimate for NHS-0000-00(247) I-285@ Roswell Road Bridge Replacement and Associated Roadway Improvements; Braided Ramp for I-285 to S.R. 400 for Glenridge and GA 400, dated May 12, 2003*, prepared by the Georgia Department of Transportation, Urban Design Office as the west shift cost estimate. As can be expected, judgments at this stage of the study are based on experience and intuition rather than facts, which are not uncovered until well along in the analysis of function. As a result of these qualified hypotheses, there appears to be a potential for initial savings in the following areas:

Right-of-Way; Major Structures (bridge); Traffic Control; Base and Paving; and Erosion Control.



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES Concept Design Stage

TOTAL PROJECT		COST	PERCENT	CUM. PERCENT
Right-of-Way Costs*		74,943,200	83.07%	83.07%
Major Structures		8,955,100	9.93%	93.00%
Traffic Control*		2,000,000	2.22%	95.22%
Base and Paving		1,474,063	1.63%	96.85%
Erosion Control*		1,000,000	1.11%	97.96%
Miscellaneous		442,228	0.49%	98.45%
Concrete Work		388,488	0.43%	98.88%
Drainage		300,000	0.33%	99.21%
Clearing & Grubbing*		298,230	0.33%	99.54%
Earthwork		191,200	0.21%	99.76%
Signs, Stripping, Signals, Lighting		160,000	0.18%	99.93%
Grassing/Landscap.*		50,000	0.06%	99.99%
Guardrail		9,642	0.01%	100.00%
	Subtotal	90,212,151	100.00%	
Inflation @ 5.00% / Year for Two Years (Minus Right-of- Way Costs) @	10.25%	1,565,067		
E&C (Minus Right-of-Way Costs) @	10.00%	1,683,402		
	TOTAL	\$ 93,460,620	Comp Markup	3.60%





PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

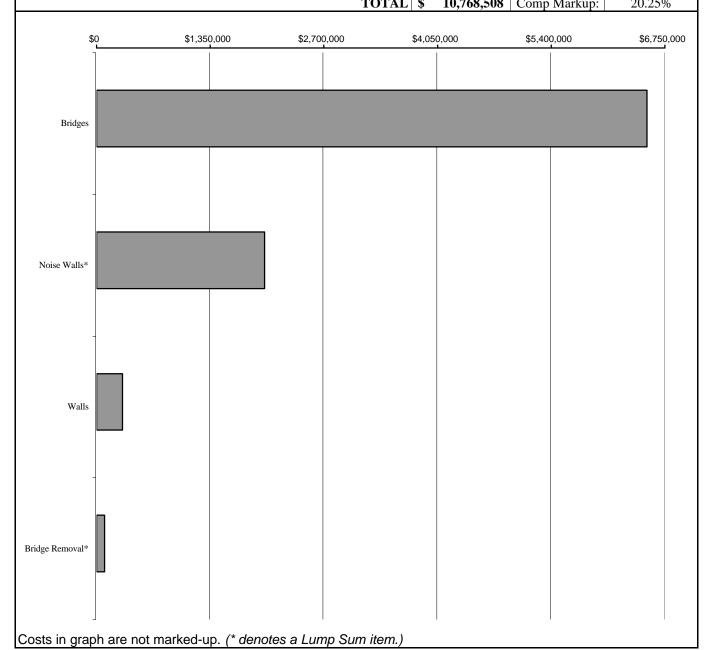
RIGHT (OF WAY		COST	PERCENT	CUM. PERCENT
nprovements - 18 Comm., 1 Apt. a	nd Misc. Site Imprv.		12,675,000	58.72%	58.72%
and - Commercial @ \$750,000/Ac	re		8,235,000	38.15%	96.87%
elocations - 18 Comm. And 1 Apt.	Bldg.		500,000	2.32%	99.19%
amages - Cost to Cure 9 Parcels			175,000	0.81%	100.009
		Subtotal	21,585,000	100.00%	
	Schedule Contingency @	55.00%	11,871,750		
Admin	stration / Court Costs @	60.00%	20,074,050		
	Inflation Factor @	40.00%	21,412,320	C M 1	2.47.200/
		TOTAL \$	74,943,120	Comp Markup	247.20%
\$0	\$2,550,000	\$5,100,000	\$7,650,000	\$10,200,000	\$12,750,000
			<u> </u>		
mprovements - 18 Comm., 1 Apt. and Misc.					
Site Imprv.					
-					
Land - Commercial @ \$750,000/Acre					
-					
Relocations - 18 Comm. And 1 Apt. Bldg.					
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Damages - Cost to Cure 9 Parcels					
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PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

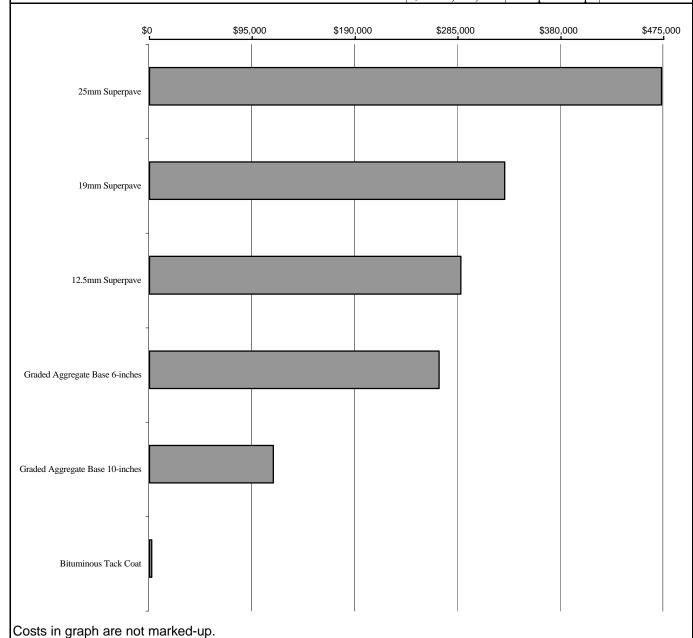
MAJOR STRUCTURES		COST	PERCENT	CUM. PERCENT
Bridges		6,542,300	73.06%	73.06%
Noise Walls*		2,000,000	22.33%	95.39%
Walls		312,800	3.49%	98.88%
Bridge Removal*		100,000	1.12%	100.00%
	Subtotal	8,955,100	100.00%	
Inflation @ 5.00% / Year for Two Years	10.25%	917,898		
E&C @	10.00%	895,510		
	TOTAL	\$ 10.768.508	Comp Markup:	20.25%



PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

BASE AND PAVING		COST	PERCENT	CUM. PERCENT
25mm Superpave		473,230	32.10%	32.10%
19mm Superpave		328,251	22.27%	54.37%
12.5mm Superpave		287,775	19.52%	73.89%
Graded Aggregate Base 6-inches		267,748	18.16%	92.06%
Graded Aggregate Base 10-inches		114,739	7.78%	99.84%
Bituminous Tack Coat		2,320	0.16%	100.00%
	Subtotal	1,474,063	100.00%	
Inflation @ 5.00% / Year for Two Years	10.25%	151,091		
E&C @	10.00%	147,406		
	TOTAL	\$ 1,772,561	Comp Markup:	20.25%



FUNCTION ANALYSIS

A function analysis was performed to: (1) define the requirements for each project element, and (2) to ensure a complete and thorough understanding by the VE team of the basic function(s) needed to attain a given requirement. A *Random Function Analysis* worksheet for the project is attached. This part of the function analysis stimulated the VE team members to think in terms of the areas in which to channel their creative idea development.

Function Analysis is a means of evaluating a project to see if the expenditures actually perform the requirements of the project, or if there are disproportionate amounts of money spent on support functions. These elements add cost to the final product, but have a relatively low worth to the basic function.

In addition to the random function analysis, the VE Facilitator worked with members of the study team to develop a Function Analysis System Technique (F.A.S.T.) diagram. The F.A.S.T. diagram was used to show the flow of function within the project. It helps to confirm the project is addressing those issues that have been voiced by the owner as important. The diagram was generated by asking the key question: "What is the most important function to be accomplished by this phase?" The answer is characterized by a verb/noun pair. In turn, another question is asked: "Why?" The answer is again listed in a verb/noun pair, and the process continued from left to right. If the result is a true F.A.S.T. diagram, the flow of functions from right to left will answer the question "Why?" No F.A.S.T. diagram is ever completed. The readers of this report may wish to challenge themselves to see how far they can carry the construction of the F.A.S.T. diagram.

This F.A.S.T. diagram notes the critical function path and identifies the project's basic function as: **PRECLUDE/MAINLINE BACKUP** by **ALLEVIATING/CONGESTION, IMPROVING/OPERATIONS, IMPROVING/TRAFFIC FLOW** and **REGULATING/TRAFFIC FLOW** and is included at the end of this section of the report.

RANDOM FUNCTION ANALYSIS



SHEET NO.: 1 of 1

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

DESCRIPTION	FUNCTION			
DESCRIPTION	VERB	NOUN	KINE	
INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND I-285	Alleviate	Congestion	В	
	Improve	Safety	RS	
	Accommodate	Future	S	
	Move	Pedestrians	RS	
	Move	Bicycles	S	
	Limit	Access	S/B	
	Buy	Right-of-Way	RS	
	Improve	Traffic Flow	\mathbf{B}_1	
	Control	Flow	\mathbf{B}_1	
	Improve	Operations	\mathbf{B}_1	
	Separate	Flow	\mathbf{B}_1	
	Reduce	Travel Time	\mathbf{B}_1	
	Save	Tree	S	
	Facilitate	Sandy Springs Revitalization	НО	
	Separate	Exits	\mathbf{B}_1	
	Span	Highway	RS	
	Control	Access	\mathbf{B}_1	
	Preclude	Mainline Backup	В	
	Reduce	Noise	G/C	

Function defined as: Action Verb

Measurable Noun

Kind: B =Basic

S =Secondary

Required Secondary RS =

HO = Higher Order

LO = Lower Order 0 =

G = Goal

Objective

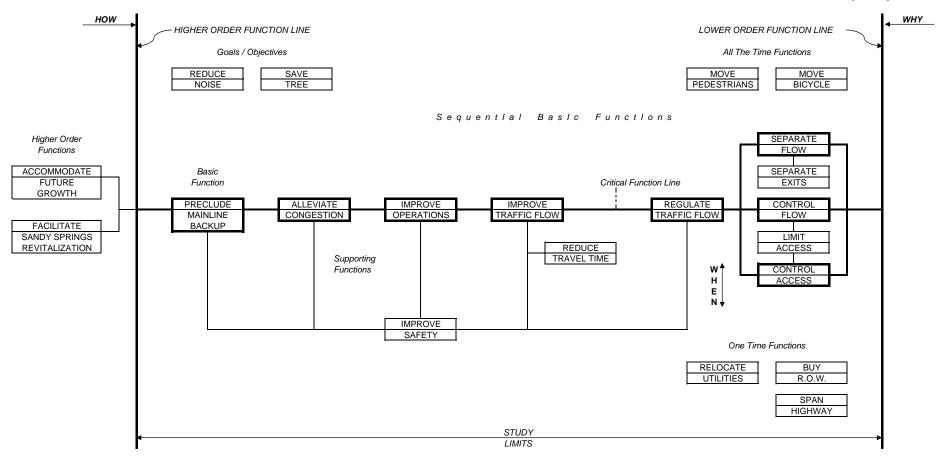
Unwanted

FUNCTION ANALYSIS SYSTEMS TECHNIQUE (F. A. S. T.)

INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 Georgia Department of Transportation, District 7 4



Fulton County, Georgia



CREATIVE IDEA LISTING AND JUDGMENT OF IDEAS

During the creative phase, numerous ideas, alternative proposals, and/or recommendations were generated using conventional brainstorming techniques as recorded on the following pages.

These ideas were then discussed and the advantages/disadvantages of each listed. The VE design team compared each of the ideas with the concept solution determining whether it improved value, was equal in value, or lessened the value of the solution.

The ideas were then ranked on a scale of one to five on how well the VE design team believed the idea met necessary criteria and program needs. The higher rated ideas were then developed into formal alternatives and included in the VE workshop. Some ideas were judged to have minimal cost impacts on the project but provided enhancements in the form of improved operations, efficiency, constructibility, or potential to save unknown or hidden costs. These were given the designation "DS" which indicates a design suggestions. This designation is also used when an idea is difficult to price but improves the functionality of the project or system, and is deemed to be of significant value to the owner, user, operator, or designer.

Typically, all ideas rated four or above are included in the Study Report. When this is not the case, an idea was combined with another related idea or discarded, as a result of additional research that indicated the concept was not cost-effective or technically feasible.

The reader is encouraged to review the *Creative Idea Listing and Evaluation* worksheets since they may suggest additional ideas that can be applied to the design.

CREATIVE IDEA LISTING



SHEET NO.: 1 of 2

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

Concept Design Stage				
NO.	IDEA DESCRIPTION	RATING		
	ROADWAY (RW)			
RW-1	Six lane from interchange to Hammond Drive (Combine with RW-2)	4		
RW-2	Acquire right-of-way for six lanes from Lake Placid Drive north (Combine with RW-1)	4		
RW-3	Purchase entire west side parcels	ABD		
RW-4	Use an eastern alignment	3		
RW-5	Separate north and south Roswell Road alignment	2		
RW-6	Move Roswell Road alignment further west	5		
RW-7	Do nothing	5		
RW-8	Eliminate bicycle lane	2		
RW-9	Reduce sidewalk width	2		
RW-10	Cul-de-sac Allen Road	4		
RW-11	Grade separate Allen Road and tie to Carpenter Drive	2		
RW-12	Cul-de-sac Clifton and Carpenter Drives	2		
RW-13	Grade separate Clifton and Carpenter Drives	1		
RW-14	Realign Copeland Road with Stone Bridge Apartments entrance	2		
RW-15	Time intersections from Interstate Highway 285 (I-285) interchange to Abernathy Road	DS		
	RAMPS (R)			
R-1	Accommodate eastbound (EB) collector distributor (CD) now	ABD		
R-2	Accommodate barrier separated high occupancy vehicle (HOV) lanes – two lanes in each directions	5		
R-3	Remove HOV from median and select a side or elevate same	2		
R-4	Consolidate EB I-285 exits – Roswell Road/Glenridge Drive	4		
R-5	Provide EB CD and accommodate off ramp to Roswell Road to Glenridge Drive/State Road (SR) 400 exit	2		
R-6	Widen Lake Forrest Drive bridge to start divergence further west	4		
R-7	Move EB I-285 exit ramp to the Glenridge Drive/SR 400 interchange further east	2		
R-8	Purchase all property north of Copeland Road now to accommodate future EB CD	3		
R-9	Purchase all property south of Allen Road now to accommodate future westbound CD	2		

 $1 @ 2 = Not \ to \ be \ Developed; \quad 3 @ 4 = Varying \ Degrees \ of \ Development \ Potential; \quad 5 = Most \ likely \ to \ be \ Developed;$ DS = Design Suggestion; ABD = Already Being Done

CREATIVE IDEA LISTING



SHEET NO.: 2 of 2

PROJECT: INTERCHANGE IMPROVEMENTS AT ROSWELL ROAD AND INTERSTATE 285 FROM LAKE PLACID TO CLIFTON DRIVES

Concept Design Stage

NO.	IDEA DESCRIPTION	RATING
	RAMPS (R) (Continued)	
R-10	Reevaluate location of EB braid bridge	DS
R-11	Build ultimate length bridge with EB and WB ramp on Roswell Road as close to I-285 as possible and provide intersections on the bridge	4
R-12	Build shortest possible bridge that accommodates I-285's needs but ignore CDs (Combine with R-13)	4
R-13	Build longest precast concrete two span bridge (Combine with R-12)	4
R-14	Tunnel Roswell Road under I-285	1
R-15	Double deck Roswell Road	1
R-16	Provide bridge at Sandy Springs Circle	3
R-17	Use concrete pavement for ramps	DS
R-18	Split EB entrance to I-285	3

 $1 \otimes 2 = \text{Not to be Developed}; \quad 3 \otimes 4 = \text{Varying Degrees of Development Potential}; \quad 5 = \text{Most likely to be Developed}; \\ \text{DS} = \text{Design Suggestion}; \quad \text{ABD} = \text{Already Being Done}$ Rating: